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ERYTHROPHLÆINE AS A LOCAL ANÆSTHETIC.

BY CARL KOLLER, M. D.

Lewin, of Berlin,* has lately directed public attention to erythrophlæine, an alkaloid contained in the bark of *Erythrophlacum Guinense*, which also forms an ingredient of the African "Hayapoison." Apart from the pharmacological and physiological interest which these researches possess, universal consideration is due to Lewin's statement that erythrophlæine possesses in a high degree the quality of producing local anæsthesia of a duration of several hours—even of one to two days.

Since I, about three years ago, introduced cocaine, the first local anæsthetic, into therapeutics, many endeavors have been made to discover among the vegetable bases such as possess the same or still higher anæsthetic properties; indeed, some substances have become known, which may correctly be called local anæsthetics, but whose employment in practice was hindered by some undesirable secondary effects.

I occupied myself in some experiments to try the effect of *erythrophlacinum hydrochloricum* on the eye, a small quantity of this substance having been placed at my disposal by Mr. E. Merck, of Darmstadt.

* A paper read in the *Berliuer Medicinische Gesellschaft*, January 11, 1888.

The instillation of two drops of freshly prepared 0.25 per cent. solution in the eye of a dog produces the following appearances: About one minute after the application a frequent blinking with the eyelids begins, evidently in consequence of pain that still increases, for with its growing uneasiness the animal tries to wipe its eye with its paw or to rub it against some object. The eye remains closed as in a spasm; the conjunctiva is very red; injection of ciliary vessels is present. After about 20 minutes the irritation seems to reach its climax; at this time both eyes are kept closed. After another five minutes the eye is opened for a while, then for a longer time, until finally about half an hour after the beginning of the experiment it remains open. The period of irritation is passed; the conjunctiva is only slightly injected. The cornea is proven to be now quite insensible to touch and pin-pricks, which insensibility lasts at least some hours. No influence upon the pupil was observed. On the next day the eye is convulsively closed, the conjunctiva much swollen and reddened, the limbus cornea raised; the surface of the cornea is clouded, so that the pupil is hardly visible; 48 hours after the beginning of the experiment the cloudiness of the cornea was unchanged; after 72 hours the cloudiness was clearing, but had not entirely disappeared. I convinced myself by repeated experiments that the corneal cloudiness takes place, even if the trial of

sensibility is avoided, which is always an ill treatment of the cornea.

Upon myself I experimented only once, and that with a 0.125 per cent. solution. In from one to two minutes after I had instilled two drops into my eye I felt a violent burning; at the same time the conjunctiva became injected and the eye began to water; the burning increased, and with simultaneous reddening of the skin the pain radiated into the whole corresponding half of the face, also into the ear, but especially into the nose. The pain and other symptoms of irritation reached their climax about 20 minutes after the beginning of the experiment; then diminished slowly, and only disappeared entirely after 35 to 40 minutes, calculated from the beginning.

The cornea was now quite anæsthetic; the sensibility to touch was already diminished in the second half of the irritation period. The anæsthesia lasted several hours in the same degree, and even on the following morning the sensibility to touch was diminished. In the pupil and the accommodation no alteration was to be observed, except, perhaps, a slight contraction of the pupil accompanying the irritation and corresponding to its intensity. About an hour and a half after the beginning of the experiment the sight became troubled; a thin mist lay on the objects, and as cause of that, a cloudiness of the corneal epithelium was to be observed; the eye was without brightness. The dimness toward the evening of the same day increased so that medium-sized printing could not be read. Around all light flames the phenomenon of a spectral ring appeared, blue inside, red outside, so well known from the symptomatology of glaucoma attacks. On the following morning the cloudiness was a little less, but lasted the whole day and had only disappeared the next morning.

Of the appearances described, two seem to me to be of especial interest—the symptoms of irritation and the clouding of the cornea. All local anæsthetics hitherto

known irritate in the beginning of their action, and, indeed, it is to be understood that the process by which finally the peripheral ends of nerves become paralyzed is felt as an irritation. With erythrophlæine the period of irritation is comparatively a long one. While after application of a 2 per cent. or stronger solution of cocaine it lasts about a minute, its duration after application of an $\frac{1}{2}$ per cent. erythrophlæine solution is longer than one-half hour. Corresponding to that, also, the influence on the nerves goes much farther, as can be recognized from the long duration of the corneal anæsthesia—many hours as against 10 to 15 minutes with cocaine. It might be supposed that danger could arise from this deep alteration of the nerves.

The clouding of the corneal epithelium is an appearance which occurs also in the use of cocaine, although in a very slight degree, and generally hardly visible, except in the rare cases in which cocaine used for operations was accused of having caused a cloudiness of the cornea of long duration. I myself, in the beginning, considered this appearance as a consequence of evaporation or drying from widely opened eyelids, enlarged eyelid-split, and insufficient winking, and I convinced myself by experiment that evaporation plays a part. But the evaporation can not be the only cause of the clouding, for, also, if it had been quite excluded, one would yet observe a slight epithelium cloudiness and point-like epithelium defects. First, my experiments with erythrophlæine strengthen me in my supposition that the cloudiness appearing with or after the anæsthesia, and increasing afterward, arises directly from the influence of these poisons. The relation existing between the duration of the irritation period, the duration of anæsthesia, and the intensity of the cloudiness clearly points to it. To explain that clouding, one must not think of an action like that of a corrosive, but of a subtler one, by which, in the epithelial cells, either directly or in consequence of paralyzing

of the nerves, a trouble of nutrition is caused and leads to the clouding.

To the subcutaneous injection of an erythrophlæine solution succeeds likewise a period of pain of a certain duration, and then apparent local anæsthesia of the skin; but this is difficult to be ascertained with animals, and I abstained from experiments upon persons on account of the intense virulence of the drug. A dog, 6 kilogrammes in weight, into which I had made an injection of 0.002 erythrophlæine, vomited violently.

Whether the local anæsthetizing power of erythrophlæine alone or in suitable combination with cocaine may be advantageously used in therapeutics can only be proved by further experiments.

VIENNA, February, 1888.

NEPHRITIS SECONDARY TO AORTIC REGURGITATION.

BY JOHN A. ROBISON, A. M., M. D.

A Clinical Lecture Delivered at Cook County Hospital.
Reported by William Whitford, M. D.

GENTLEMEN: The patient to whom I direct your attention this afternoon was admitted to the hospital on the third day of January. I will simply state, without any preliminary remarks about the history of the patient, that the case is one of nephritis due to aortic regurgitation. Albuminuria is due to three general causes—the exposure of the patient to cold or inclement weather, or to some septic material which enters the circulation and causes an inflammation of the kidney, and, finally, it may be secondary to disease in other organs, as valvular heart-disease, or constitutional disease. The case under consideration belongs to the third class of causes, the cause being aortic regurgitation. The heart being unable to carry on perfectly the systemic circulation, there is derangement of the circulation in the kidneys, causing disease, as we will see later.

The symptoms which occur in nephritis vary according to its acuteness or chronicity. In acute Bright's disease the symptoms are ushered in suddenly, and they consist of fever, generally accompanied by nausea and persistent vomiting; the skin is dry and the pulse quick, full, and tense. The patient experiences headache, malaise, loss of appetite, pains in the back or loins, extending sometimes down the limbs. These symptoms are accompanied also by scanty urine, the urine becoming more smoky-colored from the presence of blood. In the course of a few days there appears œdema of the face, with a peculiar pallor or pasty complexion, and this œdema extends to other parts of the body, especially if the patient be anæmic or debilitated. The onset of chronic nephritis is gradual and insidious, the œdema of the face, with œdema of the extremities, first calling attention to the presence of the disease. In both the acute and chronic disease the urine becomes albuminous; the microscope may reveal the presence of tube-casts, blood corpuscles, fatty oil-globules, etc., according to the stage of the disease. I think there are not a few students who have not a clear idea as to the mode of production of albuminous or bloody urine, and I wish to try and explain this point to you.

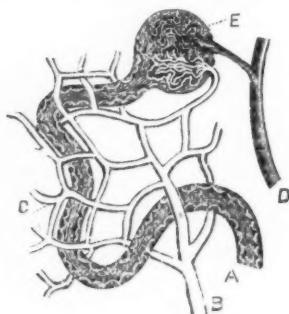
I desire first to say a few words concerning the blood supply of the kidneys, in order to illustrate in as clear a manner as possible this subject.

The location of the kidneys is such that the renal artery enters toward the centre or hilum of each kidney. When this artery enters the kidney it subdivides into a number of smaller branches which approximate in number the medullary pyramids.

These branches enter the substance of the kidney between the papillæ, and when at the bases of the pyramids, at the junction of the medullary and cortical substances, they curve inward, forming incomplete arches, giving off two sets of branches, one set running between the malpighian bodies

and giving off lateral twigs which form the *afferent* vessels to the uriniferous tubes.

If you will study the following figure,



modified from Johnson's "Bright's Diseases," you will be able to better understand the course the blood takes. The dilated end of the uriniferous tube (A), or Bowman's capsule, is pierced by the *afferent* vessel (D), which breaks up into a tuft of capillaries, the glomerulus, which reunites into an *efferent* vessel and makes its exit from the capsule, and immediately breaks up into a plexus of capillaries (C) surrounding the convoluted tubes, and again uniting forms the vein (B) which empties into the interlobular veins. The tuft of capillaries in Bowman's capsule is covered by the same cells as line the capsule. It must be remembered that the *efferent* vessel is smaller than the *afferent* and breaks up into a plexus. This has the effect of slowing the blood current and increasing the blood pressure in the glomerulus.

Now you can readily see that whenever the blood current in the kidney falls below that which is necessary to nourish the cells covering the glomerulus, they will die, be exfoliated, and thus allow the albumen of the serum of the blood to filter into the tubules along with the saline and watery elements that form the urine. You can also realize how easily blood may escape from these tufts into the tubules and appear in the urine. The conditions which will cause death of these epithelial cells are, first, diminished arterial pressure caus-

ing anæmia of the kidneys; second, inflammation of the kidney, producing derangement of the circulation sufficient to cause degeneration of the epithelium of the glomerulus and tubules; third, various chemicals, drugs, and septic materials derange the renal circulation in like manner; fourth, in spasmodic diseases there may be such a disturbance of the renal circulation as to cause temporary anæmia of the kidney, and, finally, in venous congestion, as in valvular lesions, when there is obstruction to the systemic circulation, the blood current is wonderfully altered, because there is a lessened arterial pressure in this arterial twig (D), on account of the weakness of the heart, and secondly on account of the congestion of the veins (C) pressing back the blood and causing stagnation in the capillary tufts (E). If any of the foregoing causes operate, you see it causes the death of the epithelial linings of the tubules and the escape of albumen, and blood at times, and these will be found in the urine. I think it simplifies matters for us to remember that whatever the cause of nephritis, the real seat of the danger is in the capillary tuft in Bowman's capsule, although, of course, we must remember that all the tissues may undergo change. Degeneration of the epithelial structures is the great source of albuminuria.

In acute Bright's disease and chronic parenchymatous nephritis, the degeneration of the epithelia is primary; in cirrhotic Bright's disease, the epithelial degeneration is caused by the cellular infiltration of the inter-tubular connective tissue, and the partial or complete obliteration of the tubules, and death of the epithelial structures, by reason of this growth and contraction of connective tissue. In the amyloid kidney, the glomeruli, arterioles, tubules, and all the tissues become infiltrated with amyloid material.

I will simply say a few words about the general treatment for all forms of nephritis. The first indication, of course, would be complete rest both for the kidneys and

the body, the patient being placed at rest in order to obviate as much as possible the necessity of the kidneys doing much work. In the next place, inasmuch as the skin is generally inactive, we should use diaphoretics to assist elimination. You may also in suitable cases stimulate elimination by means of cathartic remedies. In this way you prevent the necessity of eliminating poisonous materials from the blood via the kidneys. Diaphoresis may be induced by hot baths, vapor or Turkish baths. You should also give diluents, and the best diluent, of course, is the purest water. Mineral waters, especially in cases of acute albuminuria, are objectionable, because if the water contains very much mineral matter, as it sometimes does, it is irritating to the kidneys, and during all stages of the disease we desire to avoid irritants. If there be much pain your patient must be kept as easy and comfortable as possible with opium. You should also avoid the administration of diuretics, which are irritating to the kidneys, such as the balsamic preparations, which are very apt to produce haematuria. When the urine becomes nearly normal and is secreted more freely, you may give remedies specially directed to influence the kidneys locally. The remedies which have been given so far in these cases are more or less empirical. They are principally tincture of iron, which is used on account of its local astringent as well as diuretic action, and the tincture of iodine. Digitalis is a remedy of prime importance, because it raises the blood pressure in the kidneys and assists in restoring the nutrition of the epithelial cells, as well as being a potent diuretic.

In the case of this patient you must remember the fact that the nephritis is the result of aortic regurgitation; therefore we must try and remove the cause, by inducing compensatory hypertrophy of the heart. He has been taking for some time ten minimis of the tincture of digitalis four times a day; tincture of iron, fifteen minimis, four times a day. On admission, the

amount of albumen present was 10 per cent. He has also been given during this time Rochelle salts, half an ounce each morning, in order to keep his bowels active, and pilocarpine, one-eighth grain hypodermatically, when necessary, to increase the action of the skin, in conjunction with hot-air baths. The last examination of the urine was made on the 21st of January, specific gravity then being 1008; number of ounces passed in twenty-four hours, sixty-two. The amount of albumen is unchanged. No casts observed under the microscope. The indications are that compensatory hypertrophy is being established, and our prognosis is that this man will improve for a time.

428 WASHINGTON BOULEVARD.

CYST OF THE PANCREAS, WITH REPORT OF A CASE.

BY D. A. K. STEELE, M. D.,

Professor of Orthopedic Surgery in the College of Physicians and Surgeons.

[Read before the Chicago Medical Society.]

Senn, of Milwaukee, has so thoroughly elucidated the subject of diseases and injuries of the pancreas, that, thanks to his researches and experimental observations, the diagnosis and surgical treatment of the somewhat rare affection known as cyst of the pancreas becomes not only possible, but also safe and comparatively satisfactory.

So far, surgical literature contains reports of but seventeen cases. To this list I will add one, making eighteen on record up to date. It is a matter of satisfaction to know that the later additions to this list have all been made by American surgeons, Bull of New York, and Fenger of Chicago, preceding me in reporting cases during the past year. Case XVIII, Traumatic Cyst of Pancreas, presents the following condition and history:

Name, William Johnson; civil state, single; age, 40; occupation, police officer; nativity, Indiana, U. S.

Family History.—Parents, sisters, and brothers all living and in good health. No hereditary taint exists in the family.

Previous History and Personal Habits.—The patient had been in good general health up to the commencement of his present illness. When twelve years old he fell on his abdomen across a rail, and for the subsequent two weeks was unable to assume a recumbent position. About fifteen years ago he was struck on one side, below the ribs, during a fight. While railroading, some thirteen years ago, he was dragged on the ground and squeezed between cars, but no immediate, serious symptoms followed. His right fibula was fractured and foot dislocated outward, in 1876. He has had chancroids and bubo; but, with this exception, he gives no venereal history. He is a moderate smoker, takes an occasional drink, but never indulges in liquor to excess, and has been a police officer for the last ten years.

History of Present Illness.—In 1875 a swelling was noticed, occupying part of umbilical and epigastric regions. It slowly increased in size, assuming the shape of a hen's egg. It was tender on pressure, and its point of greatest prominence was located in the median line about midway between xiphoid appendix and umbilicus. At that time he was engaged as a locomotive engineer, liable to exposure and to great irregularity in the time of eating.

He does not recollect having met with any accident or fall that he could immediately associate with the appearance of the swelling, but he did suffer from "heart-burn," colicky pains and cramps at the seat of the tumor, and occasionally he also vomited some stringy mucus for a few days preceding the first sign of the swelling; his bowels remained regular. Professor Hall, of the Hahnemann Medical College, pronounced the tumor an omental cyst, and withdrew by means of the aspirator about three pints of chocolate-colored fluid, of about the consistency of porter. Some fullness of the abdomen remained, but a

distinct swelling did not recur until in 1883, in August of which year Dr. Powell removed about four gallons of brownish fluid with the trochar. In the spring of 1884 the same quantity of similar fluid was removed. In November, 1885, Dr. Fenger removed with an aspirator about four and one-half gallons of porter-like fluid, some of which he applied to the integument of the patient's arm, where it produced a slight redness. In November, 1886, Dr. Powell again withdrew about the same quantity of fluid.

During all that time the patient was in good general health; his appetite was good; his digestion was normal, and his bowels regular, though his stools were perhaps a little light in color. There was no marked tenderness of the abdomen at any time, but there was considerable pain in the back, which became aggravated each time that the tumor increased in size. He felt somewhat weak for about two weeks after each removal of fluid, but after that felt well until the increasing size of the swelling produced shortness of breath and pain in the back. In 1883 he had a hydrocele on the left side of the scrotum, which was cured by iodine injections, after withdrawal of fluid. He has varicose veins of both legs, of several years' duration. There has been no swelling of the ankles at any time. His usual weight has been about 195 lbs. up to the last three months, during which he has gradually lost flesh, and now he weighs 172 lbs. The tumor is at present as large as it ever has been, and produces shortness of breath, pain in the back, pain in the left hip-joint and thigh, but no loss of appetite or noticeable change in any of the excretions; and with the exception of the loss in weight, the patient's general health seems unimpaired, and were it not for the abnormal size of his abdomen, he would present the appearance of a strong, healthy, and vigorous man.

Physical Examination.—Inspection reveals an enlargement of nearly the whole abdomen, its most prominent point being

in the mesial line, about 5.5 inches above the umbilicus and four inches below the xiphoid appendix, when the patient is recumbent. When he is upright, the greatest prominence is a little to the right of mesial line. By percussion, there was made out a line of dullness extending from a point two inches below the left nipple, and passing four inches below the right nipple, half an inch below and parallel with the right costal arch to about two inches above the lower border of the right lumbar region, thence obliquely across the abdomen one-half inch below the umbilicus to the anterior superior spine of the left ilium. From this line and the crest of the ilium upward to a line from a point two inches below the left nipple to the lower border of the tenth rib at its origin, dullness is complete on the left side around to the spinal column. It will thus be seen that the tumor occupies the whole of the epigastric region, part of the right hypochondriac, nearly all of the right lumbar and umbilical, and the whole of the left lumbar and left hypochondriac regions. Percussion elicits dullness over the entire area. The upper border of the liver lies one-half inch below the right nipple; its left border extends two inches to the left of the right nipple; its lower border runs parallel with and an inch above the right costal arch. The space between the liver and the area of dullness gives tympanitic resonance. The apex beat is located one-half inch below the left nipple, and two inches to its right; between the area of cardiac dullness and the upper border of the tumor, resonance is slightly tympanitic. His lungs are normal. The surface of the enlargement is smooth and tense. Fluctuation is distinct over the entire area of dullness. There is limited tenderness on pressure immediately above the upper border of the tumor and in the lower part of the right lumbar region. There is no hydatid fremitus, no expansile pulsation, no auscultatory murmur, no enlargement of superficial veins of abdomen, no oedema of the lower extremities, but varicose veins of both legs exist.

October 14. *Fæces*.—Dark brown in color, of consistency of dough, medium in amount, very smooth and oily in appearance, looks as if food were well digested.

Urine.—Examination negative.

October 15. *Operation*.—With the assistance of Drs. N. Senn, E. Powell, E. E. Babcock, and the house staff, under strict antiseptic laparotomy precautions, an incision about four inches in length and two inches to the left of the umbilicus was made through the abdominal wall, the lower angles of the incision corresponding to the site of the various aspirations previously performed. The peritoneal layers were divided on a grooved director. There were no adhesions between the peritoneum and the cyst-wall, which was very vascular and moved freely with each respiratory movement. The peritoneum was then stitched to the abdominal wall by means of silk sutures, the surfaces of the cyst-wall corresponding to the margins of the incision were lightly scratched with a blunt needle in order to excite firm cohesive inflammation, the wound packed with idoform gauze, and a heavy antiseptic dressing applied.

The second operation was done without any anæsthetic, Dr. E. Powell and the house staff being present. The dressing was removed and the wound found perfectly aseptic, with firm adhesions between the peritoneum and the cyst-wall, the exposed surface of which was covered with a thick grayish layer of exudation; the sutures were removed from the margins of the incision. Primary union had taken place between the incised integument and the peritoneum. In order to demonstrate with certainty that none of the abdominal viscera covered the tumor, a hypodermic needle was introduced into the supposed cyst-wall, which was found uncovered, but increased in thickness to about three-fourths of an inch, due to the abundant plastic material that had been thrown out. By means of Paquelin's cautery, at a dull red heat, a deep furrow was plowed through the middle of the surface of the

cyst-wall exposed by the preliminary incision, until the wall was thin enough to permit a large trochar and cannula to be pushed through easily, without any danger of rupturing the adhesion that bound the tumor to the abdominal wall, and about $15\frac{1}{2}$ pints of porter-like fluid removed, while an assistant simultaneously exercised firm pressure over the abdomen. The edges of the opening into the cyst were then seized and securely held by catch-forceps and tenacula, a piece of strong silk passed through and looped, in order to still further secure the sac from being pushed out of sight, while a double drainage-tube, about half an inch in diameter and eight inches long, one limb perforated and the other whole, was introduced. The surface of the abdomen about the incision into the tumor was anointed with iodoform vaseline, to prevent any possible digestion by the fluid, and a copious absorbent dressing applied, and firm compression secured by an elastic bandage.

The patient suffered but little pain during the operation, and felt very well at its conclusion. Was placed on liquid diet.

October 27. Soup and crackers for dinner. Dressed, looking very well. Discharge decreasing. Skin not digested. Shortened tubes half an inch. (No iodoform used, Bismuth sub nit.) Appetite increasing.

October 28. Rested better than had for several nights previous.

October 29. Dressed. Co. Glyc. powder.

October 30. Slept well.

November 1. Dressed. Skin not digested. Tubes shortened half an inch.

November 2. Slept fairly well.

November 3. Dressed.

November 5. Dressed. Tubes shortened half an inch. Cavity appears to hold about three ounces. Discharge clear, somewhat stringy, and has odor of infusion of hay.

Specimens of the fluid were submitted to Professor Gibson, of the College of Physicians and Surgeons, and to Professor Haines, of Rush Medical College, for examination.

Professor Gibson reported that "the fluid from the pancreatic cyst, is composed largely of albumen, serum, blood corpuscles, a small quantity of fatty matter indicating cholesterol, oxalate of calcium indicating oxaluric acid, sodium and potassium salts in small quantities, together with a large quantity of water. I was unable to test for digestives."

Professor Haines reported negative results.

A careful examination of the interior of the cyst with a probe and the finger shows that it involved principally the tail of the pancreas or the splenic end; also, that its interior is lined with calculous concretions, probably resulting from chemical changes in the cyst contents. At present, three and a half months after the operation, the cyst continues to discharge two or three ounces of light-colored semi-purulent fluid, with a fresh hay-like odor. The cyst, when freely distended, now has a capacity of twenty-eight ounces. The sides are thrown into irregular folds or pouches, as the result of the contraction that has taken place. The cyst-wall is very thick—half to three-quarters of an inch—and covered in places with a calculous incrustation, flakes of which can be readily removed with the finger nail. The patient's general health is good, but I am not satisfied with a cure by having established a permanent external pancreatic fistula, as advised by Senn. In this case, the sac left is too large, and the discharge too copious and annoying to the patient. I believe that we will be obliged to treat it as we would an abscess or gangrene of the pancreas, by through-and-through drainage, thereby affording perfect collapse of the sac and subsequent retraction to a small fistulous track with a minimum amount of discharge and inconvenience.

This can only be done by left-lumbar drainage, above or by the side of the kidney. The anatomical environments of the posterior wall of the cyst would preclude safe drainage in any other direction.

Senn advises, in the case of abscess, the

carrying of a strong pair of curved forceps by the side of or above the kidney, and cutting down upon the point as it carries the cyst-wall and skin outwards in the loin; then to open the forceps, seize a large rubber drainage-tube and draw it into the abscess-cavity out of the anterior original incision. I do not agree with Senn in this proposition, because I believe the technique is faulty. A better plan would be to carry the drainage-tube down through the original incision to the bottom of the cyst with strong curved forceps, then to push the point against the skin until plainly felt distending it, then to make an incision down upon the cyst-wall over the end of the forceps, and lightly sear the edges of the incision with a Paquelin cautery to seal up any bleeding vessels. A strip of iodoform gauze may then be carried down to the sac-wall to act as a capillary drain for any fluid that might form a pocket in the loose connective tissue around the kidney, and finally to incise the sac over the forceps, push the *forceps and the drainage-tube through*, expand the blades of the forceps, so as to tear the incision in the sac slightly, then to close and withdraw them. In this way we run the minimum amount of risk of infection of *clean* tissue, or of separating the connection between the posterior cyst-wall and adjacent connective tissue.

The result in this case, at the date of this report, is therefore not wholly satisfactory. We have established a permanent fistula, as recommended by the highest authorities, but on account of the extreme thickness of the walls of the cyst, an ideal contraction of the cyst can not take place, and a subsequent resection of a portion of the cyst-wall around the fistulous orifice will be necessary, or else the through drainage previously suggested.

CONCLUSION.

Remarks.—The points of interest in this case are :

1. Its traumatic origin, being noticed a few months after a severe contusion of the

body and a compression of the pancreatic region between cars.

2. Its slow growth and great size, without marked impairment of health, due probably to its originating in the tail of the pancreas; the growth extending over thirteen years (equal to the longest on record), and containing four and one-half gallons of fluid.

3. Its walls being lined with calculous incrustation, and raising the question as to whether its origin might not be due to an impacted calculus in the common duct.

4. Incision and drainage through the anterior abdominal wall not being followed by collapse and contraction of the cyst at the end of three and one-half months, raises the question of the advisability of through-and-through drainage, or excision of a part of the sac.

1801 STATE STREET.

THREE CASES OF NERVE-INJURY. RECOVERY WITH OPERATION.

BY H. H. FROTHINGHAM, M. D.

[Read before the Chicago Medical Society, March 19, 1888.]

The first case was that of a young man, 20 years of age, who had received a razor-cut across the anterior surface of the arm, about four inches above the elbow-joint. Upon examination it was found that the cut extended to the humerus, dividing the brachial artery, median nerve, and partially severing the biceps and brachialis anticus muscles.

Under ether the artery was ligated at both ends, the muscles sutured with catgut, and the wound closed. An antiseptic dressing was applied, and over this a plaster cast fixing the arm in a flexed position, in order to remove all strain from the muscle sutures.

Twenty-four hours later the operator, becoming uneasy about the divided nerve, reopened the wound and sutured the divided sheath, thus approximating the

nerve ends; the material used for suture being fine catgut, and the point so taken that the portion of the stitch contained within the nerve-sheath lay parallel to the nerve-fibres. A bone drainage-tube was introduced at the inner angle of the wound, which was closed and dressed as before.

For about twenty-four hours the patient complained of tingling in the first three fingers of the hand, after which time there was no discomfort. Sensation returned rapidly to the area supplied by the median nerve, being apparently normal at the end of five days.

Flexion of the fingers and thumb and of the hand upon the forearm, was possible after four days, and increased rapidly in extent.

The wound healed throughout by first intention, and was entirely well in twelve days. At this time, sensation in the hand and forearm appeared normal; flexion of the wrist and fingers was easily accomplished, but the grasp of the hand was weak.

Control over the muscles increased, and at the end of three weeks there was apparently normal innervation of the hand and forearm.

CASE II.—Male, aged 30. Injury: A razor-cut across the forearm about three inches above the wrist, severing the radial and ulnar arteries, median and ulnar nerves, and tendons of the flexors sublimis digitorum, carpi radialis, carpi ulnaris and palmaris longus. When first seen a compress was found placed over the forearm above the wound and drawn so tightly as to control haemorrhage. The wound had been filled with Monsel's solution, and the skin incision stitched with superficial sutures of fine silk, leaving the ends of each thread a couple of inches in length. Cleansing and dressing of the wound involved the loss of some blood.

After thorough cleansing, the arteries were tied above and below, the nerves sutured as in Case I, and the severed tendons identified; the ends of each being then sutured with juniper catgut.

A catgut drain was placed deeply through the wound, the skin was sutured, a dressing applied, and the arm bound upon a Levis tin splint commonly used for fractured radius. Circulation was feeble, and the hand cold for two days, after which time the natural color and warmth were restored.

At this time sensation in the palmar surface of all the fingers and thumb was possible but slight.

Further examination into nerve condition was impossible at this time on account of the severed tendons.

Eight days after the injury the wound was entirely healed.

Flexion, abduction, and adduction of the thumb were possible, showing a return of function, at least in the median nerve.

Sensation in the hand was normal.

In four weeks the splint was removed and careful exercise advised. The patient had absolutely no pain, but a numb feeling in the hand lasting only for the first two days, and due probably to lack of blood-supply.

CASE III.—That of a lady, aged about 35 years, who sustained a fracture of the right humerus by a fall upon one elbow.

The fracture was situated just below the insertion of the deltoid muscle, and was oblique; the displacement was extreme.

The patient complained of great pain in the forearm and hand, which was not relieved by reduction of the fragments of bone.

Morphine in large doses was necessary in order that any sleep might be obtained.

Two days later the pain was somewhat diminished and was referred by the patient to the area of distribution of the musculo-spiral nerve below the elbow.

Five days after the injury, motion of the wrist and fingers was seen to be impaired.

Seven days later the extensors and supinators of the hand and forearm were found to be completely paralyzed, and there was oedema of the back of the hand.

One month after the injury the condition was as follows: There was strong bony union of the fracture; there was cutaneous

anaesthesia of the back of the hand, with oedema and glazed skin, complete paralysis of extensor and supinator muscles.

Under a diagnosis of compression of the nerve, an operation was suggested to the patient, who demurred. Faradism, as the next resort to exercise the muscles, was advised.

About this time the patient left the city and placed herself under the care of a specialist, who applied both galvanic and Faradic currents to the arm several times a week but without improvement.

Two months later the lady returned unimproved and ready for any measures which promised relief. Accordingly, the nerve was cut down upon and found just as it reached the front of the internal intermuscular septum; from this point it was traced backward through what had been the musculo-spiral groove, but now corresponded to the line of fracture and was filled with callus, against which the nerve was found compressed by a band of cicatrical tissue about an inch in width and one-fourth of an inch thick.

This cicatrix was the result of laceration of the soft parts, dependent upon the extreme displacement of fragments of fractured bone. The nerve was not caught in bony callus, but was found free in its sheath, though diminished to about one-third of its normal size, and tinted a yellowish brown at the point of constriction, this tint shading off into light yellow below and clear white above.

The cicatrix was excised and the cut triceps muscle united by catgut sutures, bone drainage-tube introduced, and the wound closed. The incision healed by first intention.

Within twenty-four hours after the operation acute pain appeared in the hand and forearm, but gradually subsided, lasting perhaps ten days.

Two weeks afterward very slight extension of the wrist could be accomplished, sensation having returned nearly to normal.

Improvement from this time on was con-

stant, and twelve weeks after the operation the patient had resumed her former occupation—that of fancy embroidery, requiring a high degree of skill in the use of fingers, and was apparently as skillful as ever.

At the present date the hand and arm seem perfectly normal, with the exception of the scar left by the operation.

The points of greatest interest are, briefly:

In Case I, primary union of the nerve though the severed ends were left for twenty-four hours before being approximated.

In Case II, primary union and early recovery, although the circulation in the hand was not fully re-established for two days.

In Case III, after twelve weeks' entire loss of function, the nerve showed unmistakable signs of recovery within two weeks from the date of the operation, and in ten weeks more had entirely recovered.

4306 LAKE AVENUE.

ECZEMA SIMPLEX DEPENDENT UPON AMETROPIA.

BY S. O. RICHEY, M. D.,
WASHINGTON, D. C.

In the Archives of Ophthalmology, Volume XIII, No. 1, 1884, may be found the report of a case of eczema of the malar prominences, whose exciting cause was an anisometropia, the eyes being hypermetropic to a different degree.

I have now to supplement that with a similar case, referred to me, from the same family, by my friend, Dr. C. E. Hagner.

October 8, 1886, Miss S. T., a cousin-german of C. K., consulted me, complaining of temporal pain, and pain at the nucha, almost continuous. Corrugated supercilia indicated the demand upon the circumorbital muscles for aid in ciliary adjustment. Frequently, the protracted use of the eyes upon objects at close range was followed by an eczematous eruption over the malar prominences. V. R. = $\frac{20}{xx}$: V. L. = $\frac{20}{xx}$. Reads Sn. 1, at 12 inches.

Insufficiency of the external recti at 18 feet = 2° . Eyes normal in other respects. Mydriasis reduced the vision of each eye to $\frac{20}{25}$, which was restored to $\frac{20}{20}$ by a +2. Ds each.

The lenses were worn constantly for some months, and then were laid aside for distance, though she still resorts to them for near vision. I have often seen the patient since to learn that the relief from the pain and eruption has been permanent.

These two cases only have occurred in my professional experience, and I can find no mention of any other. They are interesting for the aid they may afford in the study of the pathology of eczema.

EDITORIAL.

THE AMORPHOUS URATE DE- POSIT.

The above forms a portion of the title of a valuable paper contributed to *The Medical Chronicle* (March, 1888) by Sir William Roberts. The author first abstracts the paper of Dr. Bence Jones (*Journal of the Chemical Society*, 1862). He gives an unqualified assent to the propositions enunciated in that paper, the grounds for which he has carefully investigated. He adopts the nomenclature of Dr. Jones, and also his formula; considering the amorphous urates to consist of quadurates of potassium, sodium, and ammonium having the general formula :



These amorphous urates, after being washed with alcohol on a filter, or better still, separated from the fluid portions of the urine by allowing them to fall upon a sheet of blotting-paper, are found to readily decompose on the addition of water. A minute portion placed under a microscope will show the gradual formation of uric-acid

crystals when water is added. Assuming, then, that the uric-acid in the urine exists normally in the urine in the form of quadurates, the question is asked, why are they deposited in the form of amorphous urates, instead of being broken up into bi-urates and uric acid?

The author, in experimenting with normal urine upon the purified deposit, found that the inhibitory power was comparative and not absolute. The time occupied in this change varied inversely as to its concentration. It was further found that, if urine was dialysed with an equal volume of water, it lost for the most part its power of preventing the precipitation of uric acid from the amorphous deposit. This fact led to the inference that the crystalloids of the urine were the chief factors in preventing this change. Solutions of these various crystalloids were prepared and their effect in preventing the change noted. Uric acid was deposited from solutions of urea almost as promptly as in simple water. The chlorides and sulphates, in the proportion of 1 per centum and upwards, exerted considerable delay, but did not approach the normal urine in its power of preventing the decomposition of quadurates. The most pronounced effects were obtained from phosphate of potassium, a solution of 0.2 per centum acting as perfectly as normal urine, while those as dilute as one part in 2,000, sensibly delayed the process as compared with pure water.

The importance of this discovery cannot be overestimated, and must in a great measure modify our views regarding the cause and pathology of calculous disease and gouty concretions—as Dr. Roberts says that the soundness of the inference is substantiated by Mr. Plowright, who conclusively shows that abundance of salt in the food hindered the formation of calculus. This he erroneously attributed to the increased solubility of uric acid in saline solutions; whereas, it is really due to the power salines have of preventing the decomposition of the quadurates.

It is also apparent that the hypothetical "acid fermentations" described by Scherer, in which the aid of a special fungus is invoked to liberate the uric acid in neutral sodium urate, must be abandoned, at least, in so far as the first portion of the process is concerned, and likewise the theories of Brücke & Röhmann.

ADULTERATION OF FOOD AND MEDICINE.

The oleomargarine legislation of two years ago, and the recent discussions before a Congressional committee, have given the public an idea of the extent to which several important food-products have been adulterated, or mixed with similar substances of inferior quality. The numerous newspaper comments, on these and other phases of the adulteration question, are preparing the people of this country for legislative enactments, such as now protect the people of Great Britain in the purchase of food and drugs.

The English law does not prohibit the sale of mixed or compounded articles, except when unwholesome, but provides that such articles must bear a label, giving their composition in terms which can be understood by the purchaser.

A Chicago spice-grinder sells "selected," "pure," and "strictly pure" pepper, cinnamon, and cloves. The first, or "selected," grade may be adulterated to the extent of 50 per centum, the second to the extent of 10 or 15 per centum, while the third is what the labels indicate. An uninitiated purchaser would expect to find in a "selected" article something even better than "strictly pure." "Refined lard," "creamery butter," and "extract of coffee" are familiar illustrations of a misleading and dishonest use of terms.

Local laws are generally inadequate to correct these evils, but a broad enactment of the National Legislature, compelling manufacturers and dealers to sell food-

products for what they are, would give the consuming public general satisfaction.

In several States, and in a few large cities, efforts have been made in the last few years to check the sale of skimmed or watered milk for the pure article. It may be safely said that, in the larger cities and towns, where milk is not regularly examined, 75 per centum is skimmed or watered. What can be done by good laws, well enforced, is shown in the city of Boston.

In 1887, of the samples collected, over 60 per centum were adulterated; in 1884 over 40 per centum were bad; in 1885 30.64 per centum were bad; in 1886 18.55 per centum were bad; while in 1887 the number was reduced to 12.54 per centum; and this with a high standard.

In Chicago something has been done in this direction, and while the results are not as apparent as in Boston, they show, however, that the work begun by Health Commissioner DeWolf is beginning to be felt among the dealers.

The character of the milk sold in this city now is much better than was the case a few years ago.

THE INDEX MEDICUS.

It seems only natural to presume that out of the large number of physicians in America alone, a sufficient number would be found to subscribe for the *Index Medicus* to meet the current expense of publishing it. As supplementing the *Index Catalogue* of the library of the Surgeon-General's office, it is unique and worthy of liberal support, yet we are assured by the present publisher of it, Mr. George S. Davis, of Detroit, that it is not self-supporting, and the same was the case in the hands of its first publisher. It is not to be supposed that a publisher will continue, indefinitely, to publish at an annual loss to himself, even so important and so desirable a reference index as this, and we venture to express the hope that a large enough number of members of our profession, both

in this and other countries, will be sufficiently interested in the continuance of a work so valuable for reference as to subscribe for it, and to make it, at least, self-supporting. If this venture should prove a failure from lack of financial support, it is probably safe to assume that another will not soon be made, and its disappearance from our medical literature would be a matter of lasting regret. The work necessary in its preparation, and the thoroughness with which that work has always been done in this Index, entitle it to generous support, which we bespeak for it.

SANITARY MATTERS IN MICHIGAN.

The *State Board of Health* of Michigan is doing good practical sanitary work in that State, which merits commendation. Not the least important of this is the holding of sanitary conventions, under the auspices of that board, in the various cities of the State.

In those conventions are discussed not only the local questions of a sanitary nature, but the subject of sanitary science in general is made familiar, and in a practical way, to citizens who would, but for such opportunities as are afforded by those conventions, give little if any attention to many of the questions that seriously influence the well-being of the community, as well as of the individual. The amount of useful information that is, in this way, conveyed to the masses is great and of incalculable value to them. It not only instructs them in useful methods of guarding against contagious and infectious diseases, but, what is of even greater importance to them, aids them in making intelligent efforts to have their homes and their immediate environment healthful. This plan of diffusing useful knowledge might be profitably imitated by other States.

SOCIETY REPORTS.

TRANSACTIONS OF THE GYNÆCOLOGICAL SOCIETY OF CHICAGO.

REGULAR MEETING, DECEMBER 16, 1887.

The President, HENRY T. BYFORD, M.D., in the Chair.

The PRESIDENT exhibited

A NEW UTERINE ELEVATOR, and said: I have been in the habit, for a long time, of introducing an ordinary straight, hard-rubber intrauterine stem into the retroflex uterus before replacing it, in order to stiffen or straighten it, and to serve as an indicator of the position of the fundus after it has ascended out of reach. Last summer a cutler showed me a uterine elevator, invented by Dr. Miller, of San Francisco, which consisted of a straight steel stem, fastened upon the end of a thimble, with the end in view of making the stem a continuation of the finger end. I was unable to use this one, because in bending my finger so as to push the cervix back in place, my knuckle would catch against the posterior vaginal wall or pelvic floor. I therefore constructed the instrument which I show you. There are three stems—a jointed steel stem, like that upon the end of Emmet's elevator, and two copper ones of different sizes, slightly flexible. Any of these may be attached to a shovel-shaped piece in which the finger end lies at right angles to the stem. The cervix may thus be pushed backward or sidewise, and the fundus pried forward. With the finger thus against the end of the stem, and practically against the cervix, we can calculate the position of the fundus, the amount of resistance to replacement, and avoid all violence and danger.

The SECRETARY read the following

REPORT OF A CASE OF TUMOR OF THE ILEUM; DEATH FROM INTESTINAL HÆMORRHAGE; EXTENSIVE COMPLICATING LESIONS.

Reported by Dr. F. W. MERCER.

The following history was communicated

to me by Dr. Converse, the attending physician :

Annie W., single, æt. 34 years, was always considered in good health. Had menstruated regularly without undue pain till within the past year, when it was observed that the flow was not quite as copious as in health. All the other bodily functions had been regularly performed so far as the friends knew. Miss W. was of cheerful disposition, vivacious, and physically strong, being able to toss her sister's child, weighing about twenty pounds, up at arm's length above her head.

About one year ago she consulted a leading physician of this city, to whom she complained of a throbbing sensation in the left inguinal region, and also of some slight digestive disorder. The doctor informed her that he considered the throbbing due to the presence of gas in the intestine, and prescribed some digestive. After this the patient went along as usual, not making any special complaint, till the morning of October 16, 1887, when she said she felt tired, reclining upon the bed in her room. About 11 a. m. she had a movement of the bowels, consisting almost entirely of blood, but not large in amount. Dr. C., who examined the stool, concluded it was due to "bleeding piles." Absolute rest was ordered. At 12.30 p. m. the patient left her bed and entered the bath-room, where she fainted while passing another bloody stool. She was carried back to bed, where she soon revived. Dr. C. saw her again, and ordered pyrogallic acid and ergot, with brandy at short intervals. From this time till 9 p. m. she grew very restless, having involuntary discharges of blood, which were received upon cloths, making any accurate estimate of quantity impossible. At about the last-named hour I was called in consultation, and found the patient tossing from side to side of the bed, groaning and complaining of pain in the umbilicus. The features looked shrunken and pinched, the surface blanched and clammy, the face very cold to the touch, and the pulse

barely perceptible. In fact, the patient appeared moribund from haemorrhage.

An examination of the abdomen was made, and the presence of a tumor, quite symmetrical, of globular form, was discovered in the median line, just above the pubes; an enlarged uterus was suspected as the source of the haemorrhage, and an examination per vaginam was made, with the result that the os was found to be of pin-point character, cervix elongated, and giving no indications of haemorrhage.

Hot-water bags and bottles were applied to the surface, warm blankets packed about the body, and brandy given subcutaneously, with aromatic spirits of ammonium by the mouth. Transfusion was thought of, but, the means not being at hand, it was not tried. Dr. E. W. Sawyer was called, but little could be done, as the patient was now *in articulo mortis*.

Section, fourteen hours after death; Dr. E. D. Converse, Dr. E. W. Sawyer, Dr. W. Barry, Dr. Frank T. Andrews, and your reporter being present. The section was made by Dr. Frank T. Andrews. The body appeared well nourished; the rigor well marked. Upon reflecting the abdominal parietes, the intestines appeared rather pale, and not unduly distended. At the lower hypogastrium a tumor was found resting in the median line. It was globular, ten centimetres in diameter, and weighed four hundred and fifty-four grammes; was moderately firm in consistence, and attached by a slender pedicle to the small intestine (ileum), about fifteen inches above the caecum. Upon section of the ileum, an oval opening was discovered upon its mucous surface, about four millimetres by three millimetres. This opening corresponded to the attached pedicle, and communicated directly with an artery of about four millimetres calibre. It was undoubtedly from this that the fatal haemorrhage occurred. There were old and extensive adhesions of the intestines to the peritoneum. Both the right and left kidney showed a greatly reduced cortex; and the tubuli

and pelvis were found filled with pus. The liver was very fatty and friable, breaking under pressure like old granular tallow. The uterus was converted into an irregular lobulated mass, consisting of fibroid tumors. The thorax was not opened.

Dr. F. W. MERCER: I very much regret that I have not the stained specimens to show you to-night. I have, however, examined the tissues, and the tumors of the uterus are intramural myomata. The tumor of the intestine is also a myoma. It is a very vascular structure. I have been unable to develop the literature on this subject; few, if any, such cases have been reported, and I have not been able to find a parallel case to the intestinal tumor, as regards the peculiarity of its attachment and the openness of the blood vessels. Myomata are often very vascular.

Dr. E. W. SAWYER: As a still further emphasis of the condition of this patient, I want to say that she filled a difficult clerical position, involving a good deal of labor, up to the day previous to her death. I have seen her in life for the last ten years, and knew her to be industrious and a healthy appearing woman.

Professor C. T. PARKES: It might be proper to suggest the idea that this was an angioma. The partial description that has been given would call my attention to growths of that character: its extreme vascularity; the size of the vessels entering into it; its position, differing in this respect from myoma. The tissue about the walls might be connective tissue, showing some evidence of muscular fibre.

I speak merely from my experience. I have seen quite a number of myomata, but never saw any that showed the peculiarities of this specimen. It might have developed, as suggested by Dr. Dudley, in some other place, this being a foreign position. As to its attachment, I think it would be in reason to say that it might show muscular fibre if it was an outgrowth from the intestine. I would not say, of course, that it is not a myoma.

Professor A. REEVES JACKSON: It seems remarkable that this should be a myomatous tumor when so little muscular structure can be found as a basis in the intestine. The case, too, is interesting and remarkable in its history, from which we learn that the woman had degeneration of long standing of a portion of the liver; that there were adhesions of the intestines to the abdominal wall, indicating the former existence of peritonitis; that there was a fibroma of the uterus; and yet, despite all these diseases, the patient was in good health up to a recent date. All this is very remarkable. I know that women can live and seem fairly healthy with a good deal of disease present, but such an amount as was present in this instance seems quite inconsistent with a condition of *good* health. It is exceedingly important that this specimen should be examined microscopically, because its nature must be of very great interest to the pathologist.

On motion, the subject was referred for further investigation of the tumor to a committee, consisting of Drs. Fenger, Mercer, and Sawyer, and their report is to be read at the January meeting.

Professor E. C. DUDLEY reported

A CASE OF VAGINAL HYSTERECTOMY FOR SARCOMA UTERI.

The patient, a multipara, 62 years of age, came to me from Dr. Sibree, of Sturgeon Bay, Wis. Dr. Sibree, several months before, had removed a soft, friable mass filling the uterus and vagina. When the case came to my clinic at St. Luke's Hospital two months ago, the tumor, which had returned, enormously distended the uterus and vagina. Under ether, the operation previously performed by Dr. Sibree was repeated, and a soft, friable mass, weighing not less than two pounds, was removed. The tumor was attached by a short pedicle, about three-fourths of an inch in diameter, to the left side of the uterus, about on a level with the os internum. The specimen was examined by Dr. Wing, who pro-

nounced it to be a sarcoma; I therefore determined to remove the uterus per vaginam, which was done three weeks ago to-day.

The case is remarkable and interesting. Remarkable, because sarcoma of the uterus is a somewhat rare disease, the number of cases on record being less than one hundred. Interesting, because a method of operation was employed which has heretofore not been very much used—the method of Péan, *i. e.*, hemostasis was secured entirely by means of pressure-forceps, no sutures or ligatures having been used. The cervical canal was first stuffed with absorbent cotton, and closed with a single suture, which was passed through the anterior and posterior lips. This was done in order to prevent any of the contents of the uterus from coming in contact with the perineum in case it was found necessary to turn the cervix into the pelvic cavity. The cervix, seized with strong lock vulsellum forceps, was drawn to the vulva, and an incision was made with scissors entirely around the cervix at the utero-vaginal attachment; with the finger the post-cervical structures were torn away from the cervix, keeping close to the uterus until the cul-de-sac of Douglas was reached; with two fingers in the cul-de-sac of Douglas, it was easy to enlarge this opening by tearing, until I had reached the region of the broad ligament on either side; I then attempted to divide anteriorly in the same way, but, being solicitous about invading the bladder, I kept so close to the uterus as actually to tear up a layer of the muscular structures. I had carried this process beyond the vesico-uterine attachments, indeed almost to the fundus, before I discovered that I must be beyond the region of the bladder. I did not at once enter the anterior cul-de-sac, but, taking a pressure-forceps with long blade in the right hand, I passed the index finger of the left through the posterior opening, and hooked the point of the finger around the left broad ligament; then, with the lower blade of the forceps in the pos-

terior opening, I punched through to the finger tip with the other blade, and locked the forceps, thus securing the left broad ligament. The right broad ligament was secured in the same way, and the utero-vesical attachment severed with the scissors and the uterus removed. Upon putting the forceps upon the right broad ligament, and finding that the disease had extended through the uterine wall on that side and involved the uterine end of the right broad ligament, I pulled the ligament out and put on another pair of forceps back of those originally used. These forceps included the ovary and Fallopian tube on that side, and I hope all the disease.

The only difficulty in this operation was in consequence of extensive adhesions of the uterus posteriorly to the small intestine. At least twenty minutes were consumed in carefully breaking up these adhesions. The right ovary and tube came down and were secured in the grasp of the forceps, but, the patient having passed the menopause, the left were not removed. Several bleeding points anterior and posterior to the uterus were secured by means of ordinary pressure-forceps, all of which were left in the vagina.

Instead of closing the abdominal wound with sutures, the peritoneal edges, anteriorly and posteriorly, were caught at two points with lock-forceps, so that in reality the peritoneal wound was closed at these points, leaving space enough between the forceps for drainage. All the forceps, except those on the broad ligaments, were removed in twenty-four hours; these were removed at the end of forty-eight hours. It would possibly be safe to remove even the forceps from the broad ligaments in twenty-four hours, but leaving them forty-eight hours is an additional safeguard, and insures more prompt separation of the necrosed tissues within their grasp.

The patient had no bad symptom until the fourth day after the operation, when she developed a slightly elevated temperature and a pulse of 140, very weak and

almost like the pulse of collapse; but with a moderate amount of stimulation, circulation greatly improved, and was again normal in twenty-four hours. It is now three weeks since the operation; she has had no further trouble and is sitting up. I learned after this trouble with the circulation what I had not recognized before and what would have deterred me from operating had I known it, that the patient had a fatty heart.

I think this method of removing the uterus will be generally adopted. The operation in this case lasted forty minutes. If it had not been for the adhesions it could have been done in twenty minutes without difficulty.

This operation may have a wider field than vaginal hysterectomy; I have determined that the next case I have of uterine myoma, in which supra-vaginal hysterectomy would ordinarily be performed, to open the abdomen, lift the tumor out through the abdominal wound, and then, instead of using the serre-nœud, to secure the broad ligaments by means of lock-forceps in the vagina. It would probably be easy, by having the index and middle fingers in the pelvic-cavity, one on either side of the broad ligament as a guide, to force the blades of the forceps through close to the uterus on either side of the ligament to the finger tips, and then, having secured both ligaments, sever the anterior and posterior uterine attachments. The peritoneal edges of the vaginal wound might then be closed with a continuous catgut suture, or seized with lock-forceps in the vagina, as already described. This method of performing hysterectomy for myoma when the tumor is too large to be delivered through the vagina is worth trying; it would enable the operator to dispense with all extra-peritoneal methods of hemostasis, and might afford all the advantages which belong to intra-peritoneal hemostasis for ovariotomy.

The PRESIDENT reported

A CASE OF VAGINAL HYSTERECTOMY,
and exhibited specimen.

Miss P. is a virgin, 57 years of age; ceased menstruating over ten years ago. About eight months ago she had a slight hemorrhage from the uterus, and for five months before the operation had been bleeding (sometimes profusely) most of the time. She had been bedridden for five weeks, suffered frequently with severe pain in the lower part of the abdomen, and was the most waxy, anaemic looking person I remember to have seen. Her pulse ranged from 100 to 120. Her evening temperature, from the normal in the morning, ran up to 101° F., and sometimes higher upon the few evenings before the operation. When not bleeding she had an offensive vaginal discharge. She was subject to daily hysterical attacks, in which she and her friends feared she might die. A loud anaemic cardiac murmur could be heard. Vaginal indagation revealed a friable, vascular mass about the size of a small hen's egg, projecting from the cervix into the vagina, and continuous with the posterior lip. A piece taken from the lower end was examined and pronounced papilloma. I had considered it cancer and had contemplated hysterectomy, but felt relieved at the diagnosis, because the operation would have been long and difficult on account of the virgin and senile condition of the vagina and perineum, and the success would have been doubtful by reason of the extreme anaemia and nervous prostration. I also feared she would not bear anaesthesia well for the necessary length of time.

She was anaesthetized at 9 a. m., December 7, for the purpose of curetting, but the posterior wall of the cervix as far as the internal os was found so degenerated that a complete removal was considered impossible without breaking into the cul-de-sac of Douglas. The posterior vaginal wall was also infiltrated behind the cervix. I therefore resolved to take out the uterus, and did so at 1.30 p. m. The method I employed proved so successful and seemed so well adapted to her case that I think it worth while to mention it and

advise it for cases presenting similar difficulties.

After a thorough disinfection of the parts, I introduced suture of juniper catgut around the vaginal fornices so as to make a circle of ligatures. I made a bloodless incision inside of the circle, commencing in front and separating the bladder and the broad ligaments for a short distance at the sides before introducing the posterior sutures, completing the circular incision posteriorly, and opening the peritoneal cavity. Scarcely half an ounce of blood was lost. After opening the cul-de-sac its entire width, a pair of hemostatic forceps was placed on the left sacro-uterine and base of the left broad ligament, and the uterus cut loose on that side as far as the forceps reached. The manœuvre was then repeated on the other side. Then another pair of forceps was placed on each side just above the first, and the tissues severed as high as they extended. A third pair on each side included the Fallopian tubes, and enabled me to cut out the uterus with the loss of less than an ounce of blood except that which had oozed from the diseased cervix. Some iodoform gauze was stuffed in between the forceps. The forceps were removed at the end of twenty-eight hours, with great distress to the patient and followed by a temporary rise of temperature from $99\frac{2}{3}^{\circ}$ to $100\frac{2}{3}^{\circ}$ F. The temperature went down, however, and did not rise that high again until the beginning of the fifth day, when it again went up to $100\frac{2}{3}^{\circ}$ F., but subsided upon removal of the tampon, which had become offensive. She turned on her side at the beginning of the fourth day. The bowels were moved on the fifth day by a Seidlitz powder. After the removal of the iodoform gauze on the beginning of the fifth day, vaginal douches, with a tube for the return flow, were used twice a day. After the sixth day they were carbolized.

Having performed the operation both ways, viz., with and without hemostatic forceps, I feel justified in asserting that

ligatures are better for cases in which the size of the vagina and mobility of the uterus allow of their application without too much loss of time, for there is less bruising of the broad ligaments and less sloughing afterward. They may be left long and used instead of sutures to draw the stumps together over the vaginal opening. For cases in which time is an important element, and the broad ligaments can not be rapidly ligated, the forceps are preferable. In the hands of the beginner they are safer, because they may be applied with less handling and exposure of the peritoneum, and are not liable to be followed by haemorrhage. Ligation of the vaginal walls, before cutting, can be done so quickly and easily that it is a desirable procedure in all cases.

The growth, as you see, has extended as high as the internal os; with the main part of it taken off, it looks like an epithelioma of the cervix. The uterus is small in size. Sarcoma, originating in the cervix, would seem to be a rare occurrence, and this one case is, as far as I can determine, the thirteenth one recorded. One has been recorded by G. Veit (*Handbuch der Speciellen Pathologie*, etc., von Virchow); one by Scanzoni (*Lehrbuch der weiblichen Sexualorgane*); one by Kunert (*Archiv für Gynäkologie*, Bd. VI, p. 113); one by Leopold (*Archiv f. Gyn.*, Bd. VI, p. 493); one by Grenser (*Archiv f. Gyn.*, Bd. VI, p. 501); two by Spiegelberg (*Archiv f. Gyn.*, Bd. XIV, p. 178, and Bd. XV, p. 437); one by Rein (*Archiv f. Gyn.*, Bd. XV, p. 187); one by Winckler (*Archiv f. Gyn.*, Bd. XXI, p. 309); one by Schwartz (*Beerman, Inaug. Diss.*, Göttingen, 1876); one by Zweifel (*Centralblatt für Gyn.*, 1884); Hunter (*Am. Journal of Obstetrics*, Vol. XVII, p. 523), and this one. Some of these were not primary sarcomas, but were developed secondary to other growths, such as papilloma, fibroma, etc.

REPORT OF PATHOLOGIST.

Microscopical Examination of the Cervix.—On the surface the growth presents

the structure of papilloma, *i. e.*, villous projections consisting of a connective-tissue stroma covered over completely by several layers of ovoid cells. Upon the surface of these there is a single layer of columnar epithelium.

In the specimen this has been stripped off on part of the surface.

The columnar epithelium is not as tall and less delicate than that of the normal mucosa.

Normal Mucosa.—At the base of these villi the tissues are considerably altered. They consist largely of granulation cells. The normal glandular elements have quite disappeared in some parts; in others they are greatly modified, the cells lining the follicles being irregular, ovoid, or spindle-shaped.

Many of the glands are quite replaced by sarcoma corpuscles.

In some points of the specimen there occurs a delicate network of branching cells, presenting the characteristic appearance of myxoma. These portions are considerably softer than the surrounding structure.

Diagnosis.—Papilloma at surface.

Myxo-sarcoma at base.

The disease was probably primarily simple papilloma, and is now in the stage of transition to sarcoma.

MARIE J. MERGLER.

Professor J. H. ETHERIDGE: I understood Dr. Byford to say that a portion of the growth involved the vagina also, and I would like to ask him if he could follow up the broad ligament well enough to find if there was any involvement of that structure.

Dr. BYFORD: I did follow it up and put on the forceps.

Professor ETHERIDGE: I saw a case about two weeks ago that was very interesting and instructive to me. It was the removal of the uterus for cancer of the cervix. Upon examination, at first we thought we would not take it out, but as the whole cervix was involved and it had spread over upon the sides of the vagina, the left side a

very little and considerably upon the right side, it was concluded to go on and do the operation. The operator freed the cervix from the vagina and then commenced the peeling up process; the broad ligaments were exposed, and the forceps put on, and the uterus cut away. In the left broad ligament, throughout its whole extent to the pelvic wall, there were nodular enlargements, showing that the broad ligament itself was involved, and that, too, upon the side in which there was the least encroachment of the vagina; on the right side there was no involvement of the broad ligament. There were eight or nine forceps left in the vagina, which were removed at the end of forty-eight hours without any trouble. She has recovered from the operation nicely.

I have often wondered how the broad ligament appeared when infiltrated with cancerous material, and I think now that I know.

If the case Dr. Dudley reported is the one I saw, and he did not speak of one thing, I would like to speak of it, and that was a clever bit of ingenuity on the part of a clever operator in retroflexing the uterus. If I remember rightly, he attempted to push it down and draw it down from beneath without avail, and then, by taking a pair of vulsellum forceps, he grasped the uterus just above the vaginal attachment and drew it down, then took another forceps and drew it down a little more, then another, and so on, and in that way got the uterus down easily; which impresses one who has had trouble in getting the uterus down within reach.

Since the October meeting, at which a paper of mine on this subject was read by title, another case has passed through my hands which I have not reported to this society. It was a case in which there was a development of a small fibroid tumor in the posterior uterine wall. All attempts at retroflexing or retroverting the uterus were unavailing, and it had to be removed by detaching the broad ligaments which the uterus turned upward. The patient has

gone along without trouble and has made a complete recovery. The uterus was removed for incoercible haemorrhage. Everything else had been tried—scraping, stimulating applications, ergot, etc.—and the operation which was expected to be performed was the removal of the ovaries. But as I had had the experience of removing two pairs of ovaries for bleeding fibroids, and they kept on bleeding, I explained to her the difference between the removal of the uterus and the ovaries, and she finally accepted the removal of the uterus.

I believe one of the greatest advantages of the forceps over the ligature is the superior facility for free drainage. All fluids will run down through the opening in the vagina left by the forceps in a perfect manner, and there is no danger of the fluids remaining in the peritoneal cavity by the closing of the top of the vagina, which is speedily brought about. After the patient is put to bed it is but a few hours before we have a closed cavity in which fluids may decompose and septic peritonitis ensue, unless effective drainage, such as the forceps afford, be used. I think that one advantage over the ligature is enough to induce every operator to use the forceps.

Professor JACKSON: It occurred to me, in examining this specimen, that it was not necessary to remove the entire uterus. High amputation of the cervix would have removed all the disease and would have lessened the danger to the patient.

I want to refer to a point in Dr. Dudley's remarks with reference to the attachment of the sarcoma to the uterus by a pedicle. I desire to ask whether that is a usual method of attachment of a sarcoma? In the cases of uterine sarcoma that I have seen the disease commenced on a flat surface—the attachment was sessile. I once saw a case which I at first supposed was one of sarcoma, but subsequent examination with the microscope determined that it was not a sarcoma but a degenerated fibrous polypus.

These microscopic examinations of malignant disease, by the way, are not always reliable. In my own experience I have received three widely different reports, all made by competent persons and from the same specimen, so that I must confess I have less confidence in the microscope as a diagnostic instrument than I formerly had. I regret this very much because, in many cases, we depend almost entirely on such investigations to determine our diagnosis and treatment.

Dr. PARKES: I was exceedingly interested in Dr. Dudley's case, and especially in the manner of securing the broad ligaments by means of forceps. I had the pleasure of witnessing the use of these forceps by the person who first invented them, Péan, of Paris. In 1883 I did the first operation that has come under my care for removal of the uterus per vaginam by this method. In 1886 I did it again, and during the early part of this year I removed three uteri, and in each of them I employed the method that has been described this evening, the use of the snap-forceps in controlling the broad ligaments, instead of ligatures. After listening to a report of similar cases by Dr. Etheridge, I remarked that I did not see why, in this method, the uterus should be retroverted; that so far as my experience went I found no difficulty, after the division was made in the cul-de-sac of Douglas, in reaching the top of the broad ligaments with my finger, and found no difficulty in severing the attachment, and had no subsequent difficulty from haemorrhage. I can very well see that occasional cases will be met with where it will be difficult, if not impossible, to reach the top of the broad ligament so as to be sure that every portion is included in the grasp of the forceps, as in Dr. Byford's case, and in another case I saw where the uterus had in its posterior wall a large tumor, and where it was with great difficulty removed. In these instances it may be necessary to reverse the uterus. The objection to reversal is that it twists the broad ligaments, and we

know that any instrument used for pressure acts better the thinner the tissue that is engaged in the forceps.

It is only lately that very much has been said in the journals about the use of forceps instead of ligatures. Within the last two years an article has appeared in the journals by a French gentleman who has reported some forty cases operated upon in this way. The objection that comes to my mind in the use of these forceps in operation for myomata of the uterus and large size, is that in the cases I have seen the broad ligament has been carried up with the uterus to such height above the top of the vaginal wall that no forceps I have seen would embrace all the tissues. Still the plan would be good; abdominal section would enable one to tie the broad ligaments half way down to the uterine arteries, and then the forceps could be used.

Professor E. C. DUDLEY, in closing the discussion, said: Dr. Jackson has asked for my experience relative to the question whether sarcoma is apt to be attached to the uterine wall by a pedicle. Sarcoma of the uterus is too rare to permit any one operator to speak from experience. It is, however, true that sarcoma may be attached to the uterine wall by a broad or narrow pedicle; on the other hand, as Dr. Jackson says, it may be intramural. This tumor had a very short pedicle; the growth filled and distended the entire uterus; there was perhaps a pound of sarcomatous tumor in the uterus at the time of my first operation, three or four weeks before the second.

I have more confidence in the accuracy of pathological observations through the microscope than Dr. Jackson, never having had occasion to question the diagnosis of a pathologist, although, like Dr. Jackson, I have frequently employed two or three microscopists to examine the same specimen independently, but I have always taken care to employ good pathologists, of whom Dr. Wing is one.

The objection of Dr. Parkes against the

operation which I have indicated for removing myomata and securing the broad ligaments by means of lock-forceps in the vagina would not render the procedure impracticable. The broad ligaments could easily be stripped from the uterus until it became possible to include them in the grasp of the forceps. For this operation, it would be well to have, in addition to the ordinary forceps, four pairs of forceps with very long blades, two of which could be fastened on either broad ligament close to the uterus, and the ligaments could be divided between them; then the ordinary forceps might be passed through the vagina with their blades on either side of the remaining portions of the broad ligaments. After removing the uterus, the entire broad ligament on either side could then be grasped in a single pair of vaginal forceps, which should have longer and stronger blades than for ordinary vaginal hysterectomy on account of the great hypertrophy of the ligaments.

Dr. Byford considers the method of Péan inferior to that of the ligature for certain cases in vaginal hysterectomy. Péan's method seems to me better and safer for all cases. The hemostasis can be more quickly secured by the forceps than by the ligature. A single pair of forceps will secure a mass which would require several ligatures. The hemostasis is almost absolute when secured by the forceps, but is uncertain with the ligature. After the forceps have been left on for forty-eight hours, there is necrosis of that portion of the ligaments within their grasp and we thereby get rid of it; not so with the ligature mass, it must remain as a slough, sometimes for many days. Moreover, after a ligament is found to be involved in the disease for which the uterus is being removed, it may be easily drawn out by means of the forceps first applied, the surrounding tissues stripped off, and another forceps applied back of the first ones. This would be very difficult, sometimes impossible, with the ligature. The mortality of

this operation may perhaps be reduced as low or lower than that of ordinary ovariotomy. It is certainly an easier operation than ovariotomy with adhesions. The hemostatic forceps have indeed changed a very formidable operation to a very simple one.

Retroverting or inverting the uterus through the opening posterior or anterior to the uterus and bringing the fundus into the vagina is objectionable. First, some of the contents of the uterus may get into the peritoneal cavity and make trouble. Second, the body of the uterus in the vagina fills it so full as to leave very little space in which to complete the operation. It will always be well, however, as a precaution against infection of the abdomen from the malignant disease, to tampon the uterine canal with cotton and close the os externum with a suture, so that if it become necessary to retrovert or antevert the uterus nothing can get out. Iodoform gauze was used as a vaginal tampon in this case; when removed in twenty-four hours, it was found to be foetid, and therefore seemed rather an element of danger than of safety. It also interfered with drainage. If used at all, it should be placed between the forceps and the vesico-vaginal septum, where it would not be so liable to obstruct drainage as if placed between the forceps and the recto-vaginal wall. It would always seem desirable to close the peritoneal edges of the wound with lock-forceps, as was done in this case. They did not close the wound enough to prevent drainage, and they do protect the patient against the danger of protrusion of abdominal viscera in case of severe retching, vomiting, or coughing.

Dr. H. T. BYFORD: I cannot agree with the last speaker that iodoform gauze interferes with drainage and favors decomposition. As the vagina cannot well be douched during the first few days, the secretions must accumulate until forced or drawn up through the vaginal entrance, which, in the dorsal decubitus, is the high-

est end of the vaginal canal. By placing a small roll of iodoform gauze well up against the stumps (drawn down by the ligatures), and then stuffing in a long narrow strip so as to fill the vaginal canal loosely and extend out to a dry piece of gauze between the labiae, we can drain off the fluid portion of the exudations by capillary drainage, promote hemostasis, prevent prolapse of the intestines, support the base of the bladder, and keep the stumps stationary until an exudate has fixed them and closed the peritoneal cavity.

As to the advantage of the forceps in enabling us to remove more of the broad ligaments, I think that the less of the broad ligament removed the better. If the disease has extended into the ligament, the operation should not be performed. I think that the proposed combination of the abdominal and vaginal methods by the application of the hemostatic forceps from the vagina is more complicated, more difficult, and more dangerous than supra-vaginal amputation or abdominal hysterectomy. Hemostasis can be secured without it. In case the cervix must, on account of disease, be removed with the uterus through the abdomen, then the forceps might be applied from below, but the mortality would, in the nature of the case, be greater than that of vaginal hysterectomy or supra-vaginal amputation.

In answer to the criticism that a high amputation of the cervix would have been preferable, I will say that the cervical wall was so deeply invaded that the cul-da-sac would have necessarily been opened. Had it not been opened there was not enough vaginal wall to cover the raw surfaces, and the haemorrhage that would have occurred, and the suppuration afterward, whether the cautery had been applied or not, would have been much more liable to kill this feeble patient than hysterectomy. The septicemic symptoms disappeared in a day, and the anaemia is daily diminishing. In some cases vaginal hysterectomy is the safer operation.

THE CHICAGO PATHOLOGICAL SOCIETY.

STATED MEETING, MARCH 12.

I. N. DANFORTH, M. D., President, in the Chair.

The session opened with a discussion of the paper, by Dr. J. B. Murphy, on "Gunshot Wounds of the Abdomen," which was read at the last meeting, and which appeared in the March number of the *Medical Journal and Examiner*.

Professor A. E. HOADLEY, in opening the discussion, said: The cases reported in the paper are of unusual interest, for they occurred in practically a new field in surgery. Until very recently laparotomy for gunshot wounds of the abdomen was not recognized as a justifiable operation, but now operations upon nearly all the abdominal organs have been demonstrated to be practicable. It is only within the last four or five years that operations upon the abdomen for the treatment of penetrating gunshot wounds have been practiced. The paper in itself, if there were no other evidence in favor of such operative interference, would seem to furnish facts sufficient to justify it.

The author of the paper reports four cases, in three of which there were wounds of the intestine in which there would have been, in time, more or less escape of faecal matter into the peritoneal cavity, which would have set up fatal septic peritonitis. In none of those cases did peritonitis, as a complication, occur.

It is not my belief that it is necessary to pare the edges of small wounds where a bullet has simply traversed the intestinal wall, or that it is requisite to suture the mucous membrane. The mucous membrane of the intestine becomes ectropic; it almost completely occludes the wound so as to prevent, temporarily, the escape of faecal matter. It is so redundant that suturing is unnecessary. If the peritoneal surfaces be brought together and sutured,

that will be quite sufficient to seal the wound, and the mucous surfaces will take care of themselves.

In small wounds of the intestine, it will be sufficient to invert the mucous membrane, and, by continued suture, approximate the serous surfaces over the wound. These surfaces immediately become glued together, and the suture is soon buried in lymph. It will be found quite secure, and no doubt result in permanent and perfect union. The greatest objection to so many sutures, and such close coaptation of the wound, is the time required for the operation. Two hours were occupied in one of the cases reported, which is certainly a source of danger to the patient, who is already suffering from shock as a result of the injury. An ordinary bullet hole, made by a bullet of 32 or 38 calibre, through the intestine can be closed with four continuous catgut sutures, which are quite sufficient for all practical purposes. It can be done rapidly; it shortens the time, and consequently the patient is spared risk of additional shock.

Where blood clots exist of large size, whether from the mesentery or from the omentum, it is an easy matter to get them out of the meshes of the omentum and mesentery; but it happens sometimes in cases of gunshot wounds of the abdomen that there are a large number of blood clots, which vary in size from the head of a pin to that of the end of a person's finger. To get rid of them all would necessitate a long and tedious operation, and in doing it the peritoneum would probably thereby be wounded in many places. Large clots should be removed, but small ones should not be disturbed, because they will be absorbed without detriment to the case.

With reference to the irrigation of the peritoneal cavity, I would say that I consider a one or one-and-one-half per cent. solution of carbolic acid powerless to destroy the septic germs that may have found entrance into the peritoneal cavity from the intestinal canal; therefore it

should be excluded. Boracic acid, while it is much more appropriate, is open to the same objection, that it is incapable of accomplishing the end for which it is used. We can accomplish practically nothing by the use of these disinfectants. The chief thing to be done is to wash out the peritoneal cavity with large and copious douches of warm (plain) water, sterilized, if practicable, and thus flood out what septic material may be present. We can use warm-water douches in these cases *ad libitum*. The water ought to be at a temperature of three or four degrees higher than the temperature of the body.

With regard to suturing the abdominal wound, while there is no practical objection to closing the wound with a double row of sutures, still it is open to criticism, for the reason that it takes up too much time and the results are no better. The more rapidly these abdominal operations can be performed the more successful will be the result. I am convinced that in all cases of perforating gunshot wounds of the abdomen it is the surgeon's duty to explore the abdominal cavity immediately, and not to wait for special symptoms to manifest themselves. In rare cases it might happen that the abdomen would be opened where the patient could have got well without it, but such cases are rare. In every case where the bullet can be traced in the direction of the abdominal cavity the abdomen should be opened early in order to find out what mischief has been done, and if it is opened under strict antiseptic precautions the patient's chances will probably not have been jeopardized by the operation.

I am in favor of opening the abdomen by incision in the median line, where it can be made available, for we can make a larger wound in that region with less shock to the patient than in any other, and have better command over the contents.

I have only one case to refer to in my own practice of treating gunshot wounds of the abdomen. The patient received a 32-calibre bullet about two inches to

the left and one above the umbilicus. It passed through the abdominal cavity into the back, made three wounds in the intestine, traversed the omentum, and made two wounds in the mesentery. The wounds were closed with three or four continued superficial catgut sutures, including the peritoneal and muscular coats only. The mesenteric wound was not touched, as there was no bleeding at that point. The hole was half an inch in diameter, and I failed to see wherein we could improve the condition of things. If I had sutured it, I would have embarrassed some blood vessels on their way to the intestine. I thought it best to let it alone. The abdominal cavity was washed out with warm water. There was some escape of faecal matter. There were no evidences of inflammation at the autopsy. The patient lived three and one-half days after the operation, and then died from continued shock. He had lost a large quantity of blood at the time of the injury. He had no pain after the operation; no tympanitis; no distressing symptoms; but continued to vomit at intervals up to the time of his death. Autopsy showed that the wounds were all perfectly closed and smooth; the stitches were all buried, and there was no inflammation in any portion of the peritoneal surfaces.

Dr. A. B. STRONG: The writer of the paper is to be congratulated on his success in saving two out of four cases operated on for gunshot perforation of the abdominal cavity. How best to close the wounded intestines is a matter of great practical importance, and one that surgeons are not at all fully agreed upon. It would seem that that manner of procedure by which the operator could most speedily and successfully close both the visceral wounds and abdominal cavity would be the preferable one. With prolonged exposure and manipulation one can hardly avoid increasing the amount of shock always present, and thus lessen the chances of success. It has been found that when the ragged edge of the wound is

turned into the gut, and the serous surface with its subjacent muscular layer closed over it, the parts speedily and firmly unite. I do not see the necessity, then, of paring the wound and making two layers of sutures; neither do I see the advantage of closing the abdominal opening by uniting the peritoneum and other structures separately, when it can be done just as well, and at a saving of time, by the suture including at once all its layers. However, Dr. Murphy has had remarkable success, and it may be that the plan he has followed has advantages over the one that would seem to me to be the best. When we have unmistakable evidence that the ball has entered the abdominal cavity, I think, in the majority of cases, it is our duty to make an exploratory incision to ascertain exactly what damage has been done, and also to close the wounds in the simplest, safest, and most expeditious way at our command.

My experience in laparotomy for gunshot wounds of the intestine is limited to one case, where the ball entered on the left side about one and one-half inches above the anterior superior spine of the ilium, and passed downward into the pelvis. The case was not seen until twenty-four hours afterward; the patient was in collapse; the abdomen literally full of blood, which was oozing from the wound. The patient died before a large vein behind the peritoneum in the pelvis could be secured.

While speaking of these injuries, I wish to place on record a case of gunshot wound of the abdomen, in a girl fourteen years of age, that came under my observation twelve years ago. The ball, at short range, entered the abdomen two inches to the right of the median line and two inches below the navel. There was immediate paresis of the right leg, showing that the lumbar plexus had been injured. There was peritonitis. An expectant plan of treatment was followed and she ultimately recovered. With the surgical light of the present day this case would have been a proper one for laparotomy.

Professor HENRY M. LYMAN read a paper on "Alcoholism and Morphinism."

Just as the protracted use of alcohol finally produces chronic alcoholism, so the habitual consumption of morphine brings about a condition of chronic morphinism. Lancereaux, of Paris, has recently described the symptoms of this disease, which may be usually recognized about five or six months after the commencement of the habitual use of morphine. The victim finds, perhaps to his own surprise, that he can not do without the drug. Disorders of digestion soon appear; there is loss of appetite and of flesh; the countenance assumes a yellowish, earthy tint; the eyes grow dull, and only recover their vivacity after a fresh dose of the drug. The skin becomes dry; the muscles dwindle, and sometimes become oedematous. The patient now suffers with sleeplessness, or with distressing dreams and nightmare; there is loss of memory, and enfeeblement of the moral sense, though the intellectual faculties are still preserved. There are subjective pains experienced in all parts of the peripheral nervous system; sensations of pricking and of crawling, sufferings analogous to the osteoscopic pains of syphilis. General sensibility is also greatly modified—hyperæsthesia in certain regions with anaesthesia in others. Usually, there is an enfeeblement of the tendinous reflexes, though the plantar reflex is often exaggerated. The universal disturbance of nutrition is further illustrated by the rapid decay or loss of the teeth, and by the early development of baldness. The special senses are not specially injured, but sexual appetite is abolished; the female becomes sterile, and ceases to menstruate. According to Levinstein her entire uterine apparatus may become atrophied.

Between chronic alcoholism and chronic morphinism there are many points of resemblance; but Averbeck remarks that the alkaloid narcotics attack the nervous system first, and through its ruin destroy the general health, while alcohol first affects

the organs of vegetative life, and through their destruction the nervous system is wrecked. In both forms of chronic intoxication, the frightful dreams, the disturbances of sensation, even the paroxysm of delirium, are quite similar. But in the digestive organs the symptoms of irritation and inflammation are more severe in the victim of alcohol. The morphine eater, furthermore, does not exhibit those fibrillary tremors of the lips that are so commonly observed in chronic alcoholism. The drunkard may grow fat, but the morphine victim manifests a repugnance for flesh food, and grows thin. Both diseases predispose the patient to pulmonary tuberculosis. A tendency to the formation of abscesses in the subcutaneous cellular tissue is usually encountered in chronic victims of morphinism, due to the enfeebled health of the patient, and to the fact that the drug is now so frequently introduced by the use of the hypodermic syringe.

Morphinism is most common among the higher classes. Of one hundred cases studied by Levinstein thirty-two were physicians, females, neurotic males, apothecaries, and hospital attendants; all whose daily occupation brings them in contact with sick persons and drugs are the most likely to fall into the habit of morphine-taking. Ludovic Jammes communicates to the Institute of France his observations in Cochin China and Cambodia, where he has seen cats, dogs, and monkeys intoxicating themselves with the smoke of their masters' pipes. These animals present a melancholy aspect, and they sleep much more than other healthy creatures. They seem to experience the same effects that are produced by opium upon the human species.

The experiments of Mme. Edwards and M. Pilliet, recently laid before the Biological Society of Paris, show that the daily hypodermic injection of morphine will produce, in animals thus treated, a fatty degeneration of the liver, with atrophy of the cortical cells, and development of granular masses along the border between the gray

matter and the white substance of the cerebrum.

Dr. Henry Averbeck has recently contributed to the pages of the *Deutsche Medizinal Zeitung* a valuable article on the "acute neurasthenia" produced by sudden abstinence from the habitual use of morphine. He recognizes five grades of intensity in the toxic effects of the drug: (1) The period of excitement, which may be likened to the effect of good wine upon one who is not accustomed to its use; (2) the time of pleasure, so far as that can be obtained in a state of Nirvana-like repose, without joy or suffering; (3) the period of tolerance; now, the poison must be taken in continually increasing doses in order to procure any pleasure, or to ward off the terrible misery consequent upon partial abstinence; (4) symptoms of absolute poisoning; increasing doses avail nothing to produce pleasurable excitement; even the usual quantity of the drug causes nothing but suffering, with all the symptoms of chronic intoxication of the whole body; (5) death from the effects of the poison.

So profound is the prostration of the sufferer during the period of neurasthenia that his treatment should only be undertaken under the immediate presence and supervision of a physician. For this purpose a properly appointed hospital, or retreat, furnishes the best opportunity. Female nurses are preferable to male, on account of their greater gentleness, persuasiveness, and persistence in dealing with the sufferer.

About five hours after the last dose the storm of abstinence begins. This exhibits its greatest severity in those patients who have habitually consumed eight grains, or more, each day. The sufferer begs for his customary stimulant, weeps and howls if it is refused. He yawns and sneezes many times in succession; he is restless and full of pain. This period of distress continues from three to five days. At first the functions of the brain are thoroughly prostrated for several hours; then symptoms of spinal exhaustion appear. Coals of fire and

streams of molten metal seem to ooze along the spine from the head to the sacrum. Respiration is hurried (100 times a minute); the pulse may beat 150 times a minute. During the third and fourth hours, the ganglionic nervous system begins to take part in the disturbance. The throat burns; the stomach feels as if wounded or scorched. Retching, vomiting, and diarrhoea follow. During all these hours the patient tries every form of movement in search of ease, but all in vain. Only during the utter exhaustion that succeeds to a fit of vomiting does he obtain momentary relief. After five to eight hours of such misery the storm subsides. The patient, in ninety-nine cases out of every hundred can only call for morphine. The phenomena of hysteria, of hypochondria, and of a general mental derangement will now appear. Personality seems lost; the majority of such subjects are now completely irresponsible. The patient is now in the stage of complete prostration. If he attempt to write, his hand will shake; letters and even whole words will be omitted, very much like what may be observed at the commencement of progressive paresis. The pupils are dilated, there may be double vision; the senses of smell and of hearing are abnormally exalted. Hyperæsthesia, rather than paræsthesia, is the characteristic condition during abstinence from morphine. The muscular apparatus is utterly powerless; the patient feels best in the horizontal position. The secretory organs are now in a state of great activity; only the sexual organs remain impotent. The urine frequently contains albumen or, possibly, sugar. As a consequence of the irritable weakness of every part of the body, every impression upon the sensory structure of the entire organization gives rise to a sensation of pain. This tremendous enfeeblement of the nervous system brings the patient to the verge of dangerous, of fatal, collapse. To avert this, alcoholic stimulants, especially champagne, are most useful. A return to small doses of morphine, hypodermically given, may be-

come imperatively necessary. The danger of collapse is most to be feared from the third to the sixth day of abstinence. It is most likely to occur in cases of fatty degeneration of the heart, induced by the conjoined abuse of alcohol and morphine.

After a succession of paroxysms, like that above described, at the end of the fourth or fifth day, the first indications of convalescence appear. Appetite for food begins to revive. The greatest dangers and sufferings are past; but the patient is sleepless, enfeebled, and depressed in spirit. The nervous system is weak and irritable.

The prognosis is good so far as recovery from acute neurasthenia is concerned, but the dangers of relapse into the opium-habit are very great. Among physicians who have contracted the habit relapses occur in 90 per centum, among officers, in 75 per centum, of the cases.

The morphine habit can only be cured by total abandonment of the drug. The use of cocaine in its place is a great mistake. The only choice lies between two methods: Shall we abruptly terminate the use of morphine, or shall we proceed by gradual diminution of the daily dose? It seems more physiological, in dealing with a habit that has grown out of gradually increasing doses of the drug, to escape from its grasp by a gradual reversal of the process. It also seems so much more merciful and humane to remove the dog's tail inch by inch each day, in hopes that the good creature may thus become tolerant of the pain. The best way consists in the adoption of a modification of the method by immediate abstinence. The patient who has been accustomed to the daily consumption of fifteen grains must be reduced to a tenth of this quantity, and this tenth must be divided into three doses at intervals of eight hours. After the eighth day the amount should be reduced to a hundredth part of the original dose. The phenomena of acute neurasthenia will now appear. If collapse is threatened, small doses, varying from a fortieth to a tenth of

the original, may be administered once or twice during the twenty-four hours, especially at bedtime, until the worst five or six days are spent. Good wine, champagne by preference, must be given freely. Levinstein's method of giving chloral hydrate in half-drachm doses, with about a quarter of a grain of morphine, is not advisable; it acts like a regular brain-poison. During the period of acute neurasthenia warm baths, of ten or fifteen minutes duration, should be given every morning and evening. These may be advantageously terminated by thoroughly showering the spine with water a little cooler than the bath. As soon as the appetite begins to revive, massage should be employed, and the baths may be made somewhat cooler.

The method of treatment above sketched is only applicable to ordinarily healthy patients who have contracted the opium habit. It would be in the last degree inhuman to undertake a cure with the victims of incurable and painful diseases. For such, especially in malignant or tubercular cases, and in haemorrhagic uterine cancer, morphine affords the best means of relief and prolongation of life.

We have been told that in China the use of opium is no more injurious than the moderate use of good wine or beer among the better classes in Occidental countries. Dr. Edwards, the physician in charge of the Opium Refuge connected with the China Inland Mission, states that "in the villages a large proportion of the inhabitants are addicted to the habit—according to the estimation of the people themselves, at least 80 or 90 per centum of the men above twenty; 50 or 60 per centum of the women; many of the young people in their teens, and even some of the children. The common opinion here is, that if a man begins to smoke opium and smokes regularly for a month, he will at the end of that time have a craving which nothing but a further supply of opium will satisfy. At the end of a year he finds his craving so great that without his pipe he can not

possibly do his work. What his craving is, only those who smoke opium know. The replies of those who have been questioned on this point generally resolve themselves into this: When the craving comes on, I feel bad all over; my bones and joints ache, and the pain makes me perspire very freely. I am so weak that I can not work, and I feel if I do not take another pipe I shall soon die."

Kiernan, of Chicago, and Hughes, of St. Louis, recommend the use of three-drachm injections of tincture of capsicum into the rectum as an antidotal stimulant in cases of opium-poisoning. The effect is prompt, but its use is sometimes attended with the disagreeable consequence of a severe proctitis for a considerable time afterward.

Professor LYMAN closed by saying: Of all the people spoken to on the subject not one has been heard to say a word in defense of it, but almost without exception they give it an unqualified condemnation. The smokers themselves are very often ashamed to confess that they are addicted to the habit, and especially is this the case among those who come as patients. In the face of these facts one wonders what experience a man can have had who says that *he can testify that opium-smoking is of itself absolutely harmless.*

The PRESIDENT asked Professor Lyman whether he had observed any particular effects from the use of the fluid extract of *avena*, to which Professor Lyman replied that he had been unable to satisfy himself of its value, and thought it was one of those drugs with an imaginary reputation.

The PRESIDENT: It is not to any extent an antidote for the effects of opium, is it?

Professor LYMAN replied that it is not.

FIBROID TUMOR OF THE UTERUS.

The PRESIDENT exhibited specimens of a fibroid tumor of the uterus, and made the following remarks: These specimens are from a uterine fibroid of 25 years' standing, in a lady 65 years of age. The history of the case, as near as it can be ascertained,

is that about 25 years ago she first discovered the fact that she had a slight abdominal enlargement. She was then examined by two or three physicians in this city, and the growth was diagnosed as "uterine fibroid, ovarian fibroma, sarcoma, cystic degeneration," etc. At one time—15 years ago—preparations were made for an operation, and the operators assembled, but for some reason or other it was abandoned. She then left this city for St. Paul, was there several times examined, but I have been unable to find out what diagnosis was made. She returned to Chicago about a year ago, and has been under my care since that time. I did not attempt to make a diagnosis, although I believed it to be a fibroid tumor. I did not propose to do anything for it, although the patient was in a good condition. But she was possessed with an almost insane desire to get rid of the tumor. It gave her so little inconvenience that I declined to operate. I did not call in counsel in the case. About six months afterward she went east on a visit, and was well enough, it seems, to climb the steps of the Capitol dome at Washington. From Washington she went to Brooklyn and New York, and kept up her excursions. She wrote back saying she had not felt so well for years. She was gone about two or three months, when she returned to the city feeling remarkably well; but two or three days after her return she began to have hemorrhage from the uterus. She had little or no pain. I was called, and prescribed ergot in full doses, which arrested the hemorrhage, and two or three days afterward these masses began to come away under the ergotic stimulation of the womb. They came away almost spontaneously, followed shortly after by the appearance of a very copious sanious discharge, which was offensive, and the patient's condition appeared to be alarming. I thought it possible that some of the remnants of the tumor might have been arrested in the mouth of the womb and might be drawn away by forceps. I intro-

duced a Sims speculum and drew away a large mass of the tumor, but that produced no particular relief; the discharge continued to be copious and offensive. Seeing the condition in which the patient was, I had her etherized, and with placenta-forceps I drew away portion after portion of the tumor which appeared to be lying loose in the uterus and easily detached, until I had drawn away three times as much as you have here seen, and in a very offensive condition. I did not use a curette. Shortly after these masses were removed her pulse began to fail, and prudence dictated a suspension of operations. She came out of the operation without shock or exhaustion. Two or three weeks later this same sanious discharge appeared, and she returned for the removal of the rest of the tumor, or, as she expressed it, "wanted to be delivered." I again had her etherized, and removed all the detached portions of the tumor I could reach with a Thomas curette. The tumor appeared to be intramural, and to be a lobulated, fibrous mass as near as I could determine.

At the last operation, which was about two weeks ago, I removed what I believed to be all of the remaining portions of the growth and left only a denuded surface, which surface I denuded still more by the use of a curette, without much loss of blood or any great degree of exhaustion. After giving ergot, I ceased operations. The patient is improving from day to day, feels much better than she has for a long time, the offensive discharge has entirely ceased, and in every way the results of the case are very promising indeed.

Professor HOADLEY: Did the patient have the characteristic labor pains during the expulsion of the first mass of the tumor?

The PRESIDENT: Yes; she did.

Professor HOADLEY: Did the uterus contract after removing the mass?

The PRESIDENT: It contracted a little; it is day by day lessening its bulk, and I am still giving the ergot.

Professor HOLMES: What relation, if any, has this tumor to those forms that are apt to be melanotic?

The PRESIDENT: No direct relation. Melanotic masses may be found sometimes in fibroid tumors, but they are isolated.

Professor LYMAN: What was the condition of the os?

The PRESIDENT: It was the size of a quarter of a dollar, and then I dilated it with a Thomas dilator.

Dr. STRONG asked whether sarcomatous tumors of the uterus, as a rule, were very rapid in their growth?

The PRESIDENT: Not very rapid. The rapidity of a uterine tumor depends largely upon the time it occurs. If the menopause had not occurred soon after this tumor developed, it would probably have become malignant. It is exceedingly interesting to notice how long the tumor had been there, and yet remained benign.

Professor HOADLEY: The malignancy of a sarcoma depends upon the patient's power to resist it. Some sarcoma become rapidly malignant. In Dr. Danforth's case the tumor occurred just at the right time to favor its physiological resistance. The blood-supply was cut off by the menopause; that is the only way to account for its benignity.

FOREIGN.

MEDICAL MATTERS.

MEDICAL EDUCATION AND WOMEN IN INDIA—A correspondent, writing to the *Journal and Examiner* from Pullumpett, Cuddapah District, Madras Presidency, India, says:

There are not many female surgeons and practitioners in this benighted Presidency. Women are not so much advanced in civilization as in the British countries. In America females are holding very prominent and useful positions in life. In India the state of things is quite different. The education of women is at a very low ebb, and liberty is a thing quite strange to them.

The superstition and prejudice that have been reigning in India for the many dark ages are great barriers to the march of Western civilization. Thanks to the Almighty Providence who has vouchsafed to us the blessings of Western culture and freedom.

Only two native females have lately obtained the qualification for medical practitioners by passing the examination prescribed by the Government of Madras, and they have been lately appointed to take charge of the hospitals for women. Mostly, the practitioners, like myself, are males. There are a few ladies from America, connected with the American Board of Foreign Missions, who are doing very good and noble work among the Eastern sisters in this Presidency. I am in charge of a dispensary where out-patients are to be treated for their several complaints. I have obtained the diploma of apothecary by passing the required examination, after a course of study extending over four years in the Madras Medical College.

MEDICAL PRACTICE IN CHINA.—A writer in a letter from Kinngchow, Hainan, China, May 21, 1887, says: Ever since I came to Hainan I have seen more or less of the medical work of this station, and have always found it full of interest. Last year after May 1, our two doctors treated over 12,000 (or rather received over 12,000 visits from out-patients), besides treating 200 in-patients, and performing nearly a thousand surgical operations. The number coming was so great at times that they could not all be seen in one day, and the press to get into the dispensing room, even in spite of the efforts of our helpers, was so great, that at times the weak were in danger.

Those seeking treatment suffer mostly from skin diseases and from fevers. Blindness is quite common here, and sight has been restored to several by the removal of cataract, and several cancers have been

removed. There is no lack of patients, and no one knows how much direct good is done by the removal of suffering; but the indirect good is still more incalculable. As one instance of indirect good resulting to us from the medical work, we are enabled to remain in this city during the examinations, with no other annoyance than the curiosity which a foreigner is sure to excite in any part of China.

The number coming from all directions, and often several days' journey for medicines, present an interesting congregation.

JOPPA MEDICAL COLLEGE.—An extract from the report of a hospital connected with the Joppa (*Jaffa*) Medical Mission, Palestine, says: The Medical Mission is carried on five days in every week, the patients often beginning to gather round the gate as early as 6 a. m., in their eagerness for the nine o'clock opening. The total number of attendants from November 1, 1885, to December 31, 1886, was 11,176. During the same period, notwithstanding the trials and hindrances of the work, 231 patients have been nursed in the hospital, of whom twelve have died, seven being admitted in a hopeless condition. Of these in-patients, eight were Jews, ten were Maronites, three Latins, six Protestants, nineteen Greeks, one Armenian, one Copt, and 183 Moslems. The increased accommodation of the new hospital has admitted of a ward being set apart for women, already occupied by five patients.

GRADUATES FROM FRENCH MEDICAL SCHOOLS.—The number of Doctors of Medicine graduated by French faculties during the past five years is as follows: 1882-83, 622; 1883-84, 590; 1884-85, 575; 1885-86, 546; 1886-87, 624. The sudden increase in 1886-87 was due to the new law requiring medical men of the navy to take the degree from one of the six faculties.

STUDENTS IN PARIS IN 1886-87.—On October 15 there were 3,966 medical students registered in Paris, and 582 graduates. Of the latter, 479 were French, and 103 foreign. Among the foreign students the Americans and Servians headed the list with 20 each. Of the 11 women students registered, 10 were Russian and one Greek.

THE JAPANESE SANITARY ASSOCIATION.—which has 4,700 members, was founded in 1883, and now has twenty-eight branches in different parts of Japan. At the annual meeting of the association in Tokio, in May, 1887, there were 20,000 visitors to the hygienic exhibition. The name of the official journal of the association is *Dai Nippon Shiritsu Eiseikai Zasshi*.

Two thousand eight hundred and seventy-nine patients were treated last year at the Peking, China, Medical Mission Hospital, and at the New Dispensary at Nanking over 250 a day were prescribed for.

DAMASCUS MEDICAL MISSION.—Dr. MacKinnon reports regarding his medical missionary work at Damascus, that during the first eighteen months of his service in that city he treated more than 2,000 cases.

ABSTRACTS AND EXTRACTS.

A CASE OF ANILINE POISONING.

BY DR. CARL DEHIO,
Professor Extraordinary, University of Dorpat.

[*Berliner Klinische Wochenschrift*, No. 1, 1888.
Abstracted and Translated by Professor Lester Curtis.]

A healthy woman, twenty-three years old, having made a good recovery from a perfectly normal delivery, learning that she was about to be discharged from the hospital, took ten grammes of aniline oil at once, with suicidal intent. She then went to bed and apparently went to sleep.

A few hours later the attention of the nurse was directed to her by loud rattling in the throat and groans.

The physician noticed a deep cyanotic coloring of the face and of the extremities, hurried respiration, accelerated pulse, wide pupils, and a penetrating odor of aniline oil from the mouth of the patient.

After instillation of milk, copious vomiting followed. The vomited matter was of a yellow-brown color, and smelled plainly of aniline oil. It was given to Professor Dragendorff for further investigation. About an hour later, light somnolence appeared, which increased rapidly, and toward morning passed into unconsciousness. In this condition the patient was transferred to the medical clinic on the morning of February 13.

There the following conditions were found at nine o'clock in the morning: Powerful, bony frame, abundant sub-cutaneous fat, strong muscles. Patient lies passive on the back, completely unconscious, with closed eyes; reacts neither to calls nor to deep pricks with a needle. Does not swallow when fluid is placed in the mouth. Pupils of medium size, react well toward light. The voluntary muscular activity is fully suspended. The nose cool, hands and feet warm, color of face and skin very pale. The whole surface of the body and the visible mucous membrane is of a peculiar grayish-blue color. No signs of edema. When the vessels are emptied of blood, by pressure on the skin, the color remains. The color in this respect differs widely from the livid hue of proper cyanosis.

The breathing, 25 in a minute, is accelerated, irregular, and unequal, the inspirations for the most part uncommonly deep, the expiration protracted and occasionally attended with groans. The pause between inspiration and expiration is lacking; voice during groaning clear, no cough. The boundaries of the lungs normal. On the posterior dependent portions some moist medium bubbling, soft crepit-

ant râles and sibilant râles, every where vesicular breathing, nowhere muffled.

Pulse, 132, with low wave, radial artery imperfectly filled and tension low, apex-beat in the fourth intercostal space, within the line of the nipple, not enlarged nor strengthened. No epigastric pulse, heart sounds clear and plain, spleen and liver show nothing abnormal. Abdomen tympanitic throughout; tongue moist, mouth and fauces unchanged except from the blue coloration of the mucous membrane. On the buttocks a few small venous ekta-sia.

The stomach was immediately washed out, but brought to light no trace of stomach contents (patient had vomited a few hours before). Temperature of the body not raised (36.9° Fahr.) (98.4° Fahr.)

The diagnosis was made perfectly certain by Professor Dragendorff, who obtained with the greatest clearness, in the vomited matter, the reaction of aniline as well as that of toluiden.

The clinical history is as follows:

The first twenty-four hours the condition of the patient remained nearly unchanged. Every three hours the patient was put in a warm full bath of 30° R. (99.5° Fahr.), and while in the bath, ice water was poured over head, breast, and back, but with no results.

Turpentine inhalations, recommended by Kiljanski in aniline poisoning, were used without producing any change in the condition. The pulse was small and easily compressible, and varied from 124 to 136 beats; sphygmographically, it showed a plain lowering of the pulse-wave during inspiration. The temperature of the body sank during the course of the day to 35.7° C. (96.2° Fahr.)

The amount of urine drawn with the catheter about 2 p. m., about fourteen hours after the poisoning, amounted to 585 ccm. (1 pint), had a specific gravity of about 1,019, was somewhat turbid, of a deep yellow color, with a strong acid reaction, and contained neither albumen nor

sugar. Biliary coloring matter could not be shown in the urine. With the microscope leucocytes and some bladder epithelium were found.

The investigation of this portion of the urine, undertaken by Professor Dragendorff, gave aniline and toluidin (especially para-toluidin), as well as the presence of derivatives from both of these substances which had probably been separated by the kidneys in the form of complex sulphonic acids (gepaarten Schwefelsäuren).

About 10 o'clock in the evening, about eighty ccm. (two ounces) of blood were taken from an opening in a vein. This was very dark and brownish, and was fluid after ten minutes. The serum, which by the next morning had separated from the coagulum, was of an intense yellowish red. The examination of this for an accidental biliary coloring matter was unfortunately neglected by me. Professor Dragendorff has shown in the blood aniline and toluidin, and the same derivatives from these substances as in the urine.

During the night of February 13-14 the breathing was quieter, and the complete unconsciousness passed into a state in which the patient still lay in a deep stupor, but noticed, though imperfectly, strong irritations. At least, after deep pricks with the needle, slight reflex twitchings occurred and weak motions of warding off.

On the morning of February 14 (about thirty hours after the poisoning) the temperature was 37° (98.6° Fahr.), the pulse was 112, the wave very low; the radial artery had the same weak tension and fullness as the day before. The respiration was still accelerated (36 a minute), but more uniform, and no longer accompanied by groaning. The surface of the body moist, the forehead and face covered with profuse sweat; consciousness had not yet fully returned.

Toward noon, the patient began to swallow when fluids were put into the mouth. After an enema, followed a tolerably copious brownish-yellow stool.

At six o'clock in the evening the patient lay in a copious perspiration, which covered the whole body and collected in thick drops on the face. She opened her eyes and looked before her with an apathetic expression; did not speak; did not move spontaneously, and responded to needle pricks by sluggish shrinking and groaning sighs. Pulse 104, wave very small, scarcely perceptible; heart sounds faint but clear; respiration 32, superficial; some cough, everywhere vesicular breathing; crepitant râles not noticeable; extremities warm, temperature 33.7° (92.7° Fahr.).

Ordered a tablespoonful of brandy punch every hour.

On the morning of the 15th of February, three days after the poisoning, intelligence had fully returned. Patient answers all questions sluggishly, but with perfect clearness; complains of headache and sense of oppression in the left of the abdomen. Voluntary motions are possible; but the general weakness of the body is so great that she can not turn herself on her side without help, or hold her arm in the air unsupported. Pricks with the needle are perceived accurately everywhere; pupils tolerably wide, react well to light. The pulse, 108, is fuller and stronger than last evening. Breathing free, 26.

The jaundiced coloration of the skin and conjunctiva has increased. The liver not demonstrably increased, not painful on pressure. Spleen the same. The blue coloration of the skin has become less; but in spite of the contemporaneous jaundice it is plainly noticeable under the breasts, on the nates, and in the inguinal folds. Temperature, 37.5° (99.5° Fahr.).

Ordered brandy, bouillon, milk.

The urine drawn with the catheter at 11 a. m. amounted to 485 ccm. (sp. grav. 1,020), was dark yellow red, clear, free from albumen, and gives a plain reaction for biliary coloring matter.

February 16, morning (fourth day of illness). Patient is indifferent to everything that goes on around her, headache less, no

thirst, no appetite, an abundant secretion from the vagina, jaundice and general condition unchanged, temperature 37.2° (98.6° Fahr.), pulse 90, respiration 30.

Evening, temperature 37.2° (99° Fahr.), pulse 88, respiration 28. Patient complains of severe spontaneous pain, and of pain, on pressure, in the epigastrium. No nausea, vomiting, or other gastric symptoms, with exception of loss of appetite. Patient has had no evacuation of the bowels or of the urine for twenty-four hours, and was therefore catheterized. The urine thus obtained was 1,325 ccm. (2 4-10 pints), sp. grav. 1.020, is brown red, somewhat turbid, acid; the filtered urine does not become cloudy on boiling, and gives a plain reaction for biliary coloring matter.

February 17, morning (fifth day of illness). Temperature, 36.8° (98.3° Fahr.), pulse 88, respiration 24. Patient is perfectly sensible, complains of slight headache. Pain in epigastrium on pressure is less, jaundice less intense, surface of the body lemon-yellow color, pulse small and weak, respiration perfectly free and quiet.

Evening. Patient has again passed no urine for twenty-four hours, although the bladder is distended almost to the navel. She has raised the suspicion, by her capricious, hysterical manner, that the retention of urine is simulated. About 1,465 ccm. (2.6 pints) of urine were drawn by the catheter at one time, which was of the same character as the day before; temperature 37.6° (99.7° Fahr.), pulse 80. A hypodermic injection of morphine was given in the night on account of a sudden cardialgia.

February 18, morning (sixth day). Temperature 36.7° (98.3° Fahr.), pulse 80. The patient is weak and without appetite, complains of moderate abdominal pain. Objectively, everything is unchanged, the retention of urine continues, the jaundice is fainter than the day before, the blue coloration no longer noticeable, the urine, drawn at evening with the catheter (sp. grav. 1.018), amounts to 825 ccm. (1.5 pints). It is very turbid, brownish-red,

acid, and on standing, deposits an abundant muco-purulent sediment. Filtered clear and boiled, it shows a scanty red cloud which does not diminish by saturation with acetic acid (haemoglobin?). Notwithstanding the dark color of the filtered urine, Gmelin's test gives no plain reaction for biliary coloring matter. Temperature 37.4° (99.3° Fahr.), pulse 84.

February 19, morning (seventh day). Patient slept well during the night; temperature 37.5° (99.5° Fahr.), pulse 108, respiration 26, appetite returns. Tenderness, on pressure, over the epigastrium unchanged, liver not demonstrably enlarged, jaundiced color of the body still present. Patient is still so weak that she can not stand, but she can hold herself upright in bed for a short time. The patient passes no urine voluntarily, and complains of no feeling of oppression, although the bladder is distended almost to the navel. With the catheter 1,700 ccm. (3 pints) (of 1,014 sp. grav.) of urine were drawn. This has to-day a quite striking appearance; it is of a black-brown color, almost perfectly opaque, of an acid reaction, and on standing, precipitated an abundant red-brown sediment. When filtered, the urine is of crystal clearness, of a Burgundy-red color and, with the spectroscope, shows in the plainest manner the absorption bands of oxyhaemoglobin. By boiling, there collects a floating, coagulated, brown mass. When this is filtered out, the urine appears a pale yellow. Heated with a solution of potash, a red-colored, rather scanty, sediment is deposited from the filtered urine, without a perfect decolorization of the urine resulting (Heller's blood test). Biliary coloring-matters are no longer to be demonstrated with certainty. The urine sediment consists of very numerous round cells, which in part contain a large plain nucleus and have taken up a great quantity of fine brown granules. Some of these cells contain vacuoles. Further, a quantity of cylindrical structures are to be noticed, of the size and form of medium-sized tube-

casts, which consist of dark-brown granular masses; also a few hyaline casts, which are covered with thickly granular brown masses. A sample of blood was obtained from a small venesection; it flowed readily, and the following day showed a deep Burgundy-red serum in which was seen oxyhaemoglobin spectrum.

A sample of blood from the tip of the finger shows, under the microscope, a defective formation of rouleaux, some half decolorized blood-corpuses, and a good many remains of red corpuscles which have become quite colorless (so-called shadows); dismembered poikilocythen, among which the cup-shaped, bulged-out forms prevail; white blood-corpuses, relatively quite numerous, and a quantity of small colorless nuclei, and heaps of granules. Several counts of the red blood-corpuses gave an average of 2,700,000 corpuscles in a cubic millimetre.

February 20, morning (eighth day). Patient has slept tolerably well; temperature 37.5° (99.5° Fahr.), pulse 95, appetite good, body weakness still very great, jaundice diminishes constantly. Evening, temperature 36.7° (97.° Fahr.), pulse 104, respiration 20; 1,500 ccm. (2.7 pints) of urine were spontaneously voided. The color is dark red, a little brighter than yesterday. In other respects the urine shows exactly the same character as the day before.

February 21, morning (ninth day). Patient slept badly, complains of headache, temperature 36.7° (91.° Fahr.), pulse 96. There is now only a slight trace of jaundice, the general condition of strength improves, has appetite. The urine is now voided spontaneously, the daily quantity amounting to 1,900 ccm. (3.4 pints).

The urine is acid, turbid, and of a red color, but brighter than yesterday, and allows only a slight red color of the precipitate to be seen with Heller's blood-test. Spectroscopically, the haemoglobin bands are less distinctly to be noticed; biliary color reactions are no longer to be obtained;

the abundant sediment consists of leucocytes and manifold nuclei, which contain within them a number of colorless, strongly refracting granules and drops and only a few brown granules.

February 22, morning (tenth day). Temperature 36.4° (97.5° Fahr.), pulse 110. Evening, temperature 37.3 (99.° Fahr.), pulse 132. The urine is of a yellow color, turbid. Haemoglobin is no longer to be demonstrated. The daily quantity amounts to 1,550 ccm. Brown granules are no longer to be found in the cells of the copious purulent sediment.

February 23, morning (eleventh day). Temperature 36.6° (97.9° Fahr.) Evening, temperature 37.3° (99.° Fahr.), pulse 105. Jaundice has entirely disappeared, the great degree of wax-like paleness of the skin and mucous membrane now shows very plainly.

The quantity of fat has decidedly diminished in the past week, the muscular apparatus is weak and relaxed, the appetite moderate, no stomach symptoms. Objective changes in the abdominal organs can not be demonstrated. Belly soft, not springy, liver and spleen not demonstrably changed, patient complains of severe pain in the whole abdomen, and has been constipated for a few days. The blood drawn from the forefinger by a needle-prick is microscopically very pale and watery, and shows an average of 1,400,000 red corpuscles in a cubic millimetre. Quantity of urine 1,250 ccm., with the same character as yesterday. A soft brown stool followed a dose of castor oil.

February 24, morning. Temperature 36.8° (98.° Fahr.), pulse 90. Evening, temperature 37.2° (99.° Fahr.), pulse 132.

Quantity of urine 1,400 ccm. (2½ pints), character unchanged; sleeplessness. After 4.0 paraldehyde, sleep followed for two hours.

February 25. Condition unchanged; quantity of urine 1,450.

Evening, paraldehyde 6.0, followed by some hours' sleep.

February 26, morning (fourteenth day).

Temperature 36.9° (98.4° Fahr.), pulse 99. The patient is very languid and without strength, and complains continually of drawing pains in the body and the extremities, and of occasional numbness in the latter. Emaciation has made rapid progress and the anaemia has reached a very high degree. The skin is pale as marble, the lips quite colorless.

The urine is of a deep yellow color, is feebly acid, and, on standing, becomes very soon alkaline. It deposits a thick muco-purulent sediment, and contains in the purulent mixture a correspondingly small quantity of albumen. The sediment consists of leucocytes, flat epithelium, and disintegrated hyaline tube-casts with a few casts beset with epithelium.

From February 27 to the 1st of March, the condition of the patient gradually improved; the strength began to increase, but the vague pains remained, and the urine also contained a muco-purulent sediment. Tube-casts were no longer to be found.

March 2 (eighteenth day). A moderate but unmistakable diminution of the liver dullness can be demonstrated. Its lower border is two finger-breadths higher than normal, and reaches on the left only to the median line, so that the lower edge of the heart-dullness borders, to a great extent, directly on the tympanitic resonance of the stomach. The examination of the urine for leucin and tyrosin gives a negative result. Two counts gave respectively 3,000,000 and 3,400,000 blood-corpuses in a cubic millimetre of blood.

March 3. The day's quantity of urine amounts to 1,650 ccm., and in this are contained :

Urea.....(1.06 p. ct.)=18.02 gr.
Uric acid.....(0.0156 p. ct.)= 0.27 gr.
Chlorine.....(0.072 p. ct.) 1.97 g. na. cl.
Sulphur (SO_3).....(0.04 p. ct.)=68. g.
Phosphorus (P_2O_5).....(0.08 p. ct.)=1.36 g.

While in general the secretion of the ordinary constituents of the urine had returned to about half the normal, which in the anaemic patient lying in bed is not to be wondered at, the amount of chlorine sep-

arated in the twenty-four hours is about one-tenth the normal daily secretion. An analysis of the urine from March 17 to 22, gave quite normal results. On the 7th of April, patient was discharged.

The author's discussion of this history, though occupying some space, must be given very briefly.

Following the first vomiting, which was undoubtedly due to gastric irritation, were the symptoms which were, without doubt, due to the action of the poison contained in the blood on the nervous system, such as the stupor, the loss of the reflexes, and power of motion, the change in breathing, pulse-rate, depression of temperature, the sweating, etc.

The bluish hue of the skin appears to be due to a coloring matter formed from the breaking up of the aniline oil. Dragendorff is also of this opinion. Similar substances were found in the urine, but disappeared after the fifth day, when the aniline oil seems to have been pretty completely eliminated.

The poison appears to have had a destructive action on the blood. Twenty-one hours after the poisoning the urine contained biliary coloring-matters; the jaundice grew in intensity up to the fifth day, when the biliary coloring-matter disappeared from the urine, and the jaundice diminished. The opinion of the author is that this color comes from disintegrated blood-corpuses. If it had been due to absorption of bile there would have been more biliary acids in the urine.

On the sixth day the urine contained a great quantity of haemoglobin which, of course, indicated a still greater degree of destruction of the corpuses. How great this destruction was is indicated in several ways, especially by the count of the red corpuses, which, instead of the normal 5,000,000 to 5,500,000 in a cubic millimetre fell on the 11th day to 1,400,000.

From the ceasing of the haemoglobinuria dates the beginning of the convalescence of the patient.

"At any rate, the present clinical case shows with a sharpness which can not be excelled by an experiment on an animal, that aniline oil belongs to that group of poisons which can cause both jaundice and haemoglobinuria in the same individual; a fact which before this time was not known."

STUDIES IN JAPANESE "KAKKE," OR BERI-BERI.

BY WALLACE TAYLOR, M. D.,
OF OSAKA, JAPAN.

History.—The most competent writers believe that a disease corresponding to that now known in Japan as kakke existed in China as early as the year 200, B. C. The term signifies disease of the legs.

The accounts given of this disease state that it appeared in the province of Tsin, during the Tsin dynasty, which existed from 267 to 317, A. D.; and that from thence it gradually spread over the country to the east and south of the river. The ancient province of Tsin included the southern half of Shansi and the northwest portion of Honan provinces.

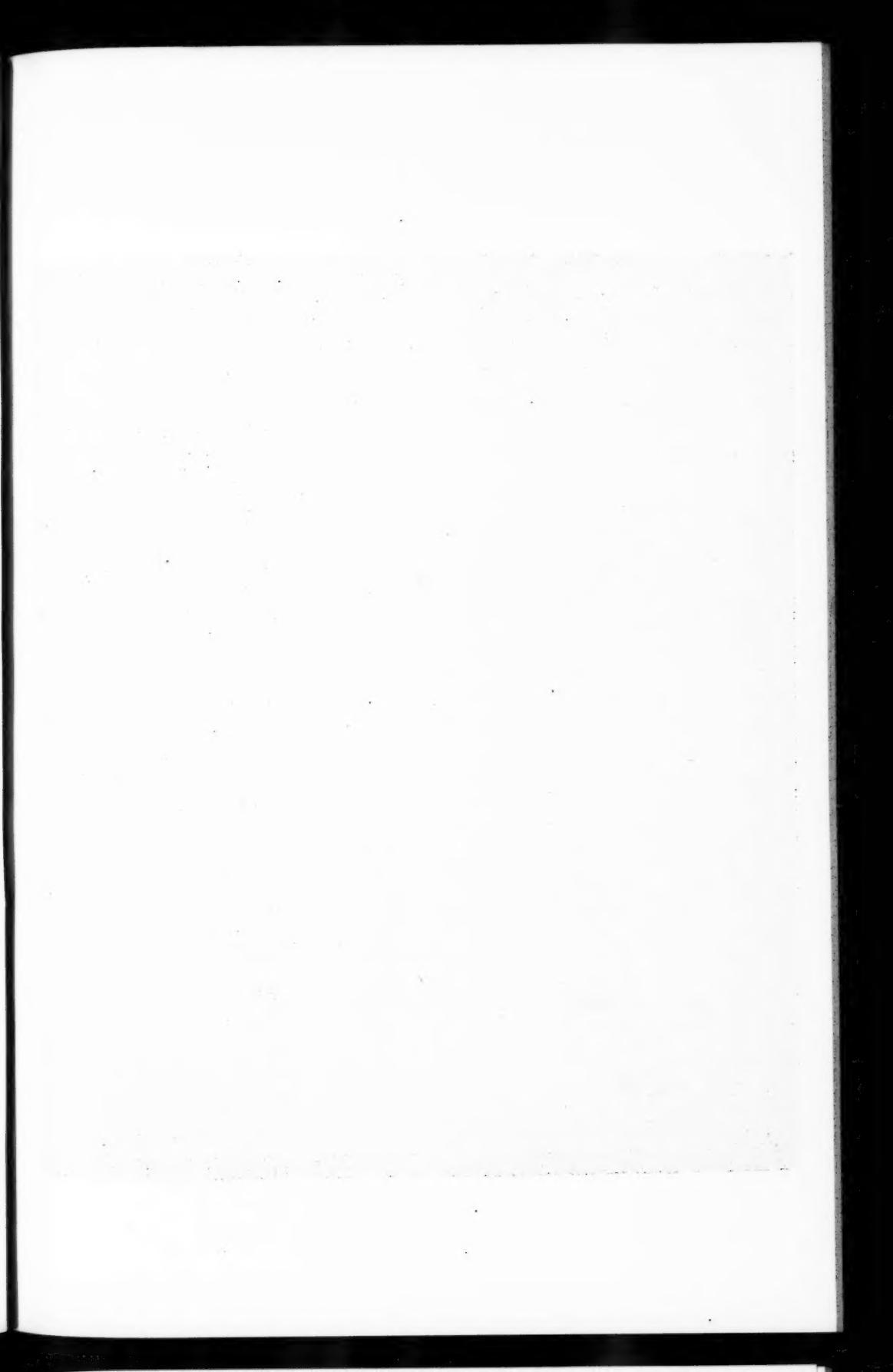
It would appear that "kakke" was first known in this section of China, and gradually spread over the alluvial plain east along the Hoang Ho River, and then gradually became disseminated over a large portion of the country. But spreading over the country may mean no more than that this disease was then first recognized. In the crude state of medical knowledge of that time, the disease may have prevailed ages before unrecognized. Recent Chinese medical literature is silent in regard to this disease, hence it has been thought to have disappeared from the country. European physicians, practicing in China, have failed to recognize this disease till recently. Within the last two years Drs. Lambeth and Park of Tsuchow, and Dr. Boone of Shanghai, have met a number of cases. These gentlemen are of the

opinion that there are many cases of beri-beri among the Chinese. The disease has also been recognized at Fatshan, near Canton, and among the Chinese in the Hong-Kong city hospital.

The earliest account of this disease in Japan is found in the political history of the country. As early as A. D. 809, the historical collections of "*Nihon Koeki*" record a letter of resignation of an officer to his superior in Kiyoto, assigning as the reason of his resignation that every year he suffered from "*Ashi ke yamai*" (disease of the legs), and was therefore unable to perform the duties of his office. The earliest account of this disease in Japanese medical literature dates back to about A. D. 880. Most of the earlier medical writers drew their description of this disease largely from Chinese medical works, but state that the disease was found in Japan. The earliest account of this disease in Japanese medical literature, bearing evidence of originality, dates back about 165 years. Since that date the references to the disease become more and more frequent, and show a better understanding of its nature. There is evidence conclusive to show, that within recent years it has been gradually extending to districts where it had hitherto been unknown.

Pathology.—The statements made in regard to the condition of the blood in beri-beri have been contradictory. Most authors state that anæmia is one of the causes of this disease, or if not a predisposing cause, an essential accompanying element, and also that there is an increase in the number of white corpuscles in the blood. Dr. Simmons was the first to contradict this prevailing opinion. The peculiar pallor which most generally accompanies this disease has undoubtedly led to this opinion. But this appearance is deceptive; it is not due to an impoverished condition of the blood, but to other causes.

Clinical experience had led me, several years ago, to the conclusion that anæmia was not a predisposing cause, and if found



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complicating cases of kakke its association was accidental; and, to fully settle the question for myself, I began a series of observations* on the blood of kakke patients.

During the last few years I have kept a record of the physical condition of the kakke patients seen, and herewith give a summary of that record, together with a similar report of a kakke hospital in Tokio :

	Taylor.	Kakke hospital.	Sum.
Of strong constitution	323	598	916
"average "	15	28	42
"weak "	9	6	15

Thus, in a total of 973 kakke patients, there was 94 per cent. of strong constitution (a result almost identical with that given in the above tables) and only 6 per cent. of average and weak constitutions. These numbers are large enough to be conclusive, and anæmia is not one of the pathological conditions of kakke. In those cases where there was some anæmia, no relation was found to exist between the amount of anæmia and the severity of the disease. The pallor and œdema of the face, so often seen in cases of kakke, is deceptive, giving the patient an anæmic appearance when no anæmia exists.

The condition of the circulation is one of the most striking as well as the most important features of kakke. However profound the muscular paralysis may be, there is no occasion for alarm so long as the respiratory and circulatory systems are not involved. But in most cases of marked muscular paralysis the respiratory muscles are somewhat weakened, and the circulatory system seriously affected. The phenomena of "shiyoshin"†—which is liable to

suddenly occur at any time in any case—is chiefly due to failure of the circulation and respiration, especially the former. I have witnessed but few cases of death from kakke where failure of the circulation was not the chief, and in many instances the sole, cause of death. Though these paroxysms of "shiyoshin" sometimes unexpectedly and suddenly occur in mild cases, yet they are generally preceded by a gradual failure of the powers of circulation.

For the purpose of more fully studying the cardiac and vascular phenomena occurring in kakke I began a series of observations‡ with the sphygmograph,§ and give herewith some of the cases with the tracings taken during the summers of 1883 and '84. For want of room only two cases are cited:

The following description is given of the clinical symptoms of two cases:

CASE 16.—K. T., male, aet. 49. The patient is of strong constitution. This is his fifth attack of kakke, and he has now been ill thirty-five days. He can not stand, neither can he flex or extend either of his legs or feet. He can slightly move the toes and imperfectly rotate the legs. His wrists drop when the arms are raised, and he can not raise them, nor can he fully extend the fingers. Dynm. R. H. 5, L. H. 5.

Respiration 26. Pulse weak, and is more weakened when the arm is elevated. I can not distinguish the click of either the aortic or pulmonary cusps, as the patient lies on his back, but by slightly turning

times rapid and violent, and again it is calm and quiet. But whatever be the character of the heart's action, the increased feebleness of the pulse and increased blueness of the extremities show a marked diminution of the circulatory power. These paroxysms are almost invariably the precursors of a fatal termination. The patient not infrequently dies in the first paroxysm; he may linger, however, a few days, the paroxysms growing more and more frequent and severe till death ends the distressing scene.

‡ A full report of these observations are published in the "Tokei Medical Journal," 1885-86.

§The tracings here given were taken with Marcy's Sphygmograph, improved by Mahomed; and the rate of travel by the slide bearing the card was 11 to 12 cm. in 10 seconds.

* The results of these observations have been published in full in the "Tokeizasshi," 1883, Osaka, and in the "Tokei Medical Journal," 1884.

†"Shiyoshin."—This term as used by the Japanese has no pathological signification; they simply mean by it a metastasis of kakke to the chest. The paroxysms of "Shiyoshin" bear some resemblance to an acute attack of *Angina pectoris*. There is great distress in the chest, accompanied by marked dyspnoea, and failure of the powers of circulation. The action of the heart is some-

him over on his left side these valve sounds can be faintly heard. He has some distress in the chest, and suffers from palpitation of the heart.

Seven days later the patient is gradually losing ground. The hands and feet are cold and slightly purple. They look and feel much as the extremities of a person in collapse from cholera, except that the cuticle still retains its elasticity. The voice has grown very weak, and the patient is suffering from marked dyspnoea. The diaphragm is partially paralyzed, and respiration is largely carried on by the respiratory muscles of the chest.

But the following night slight "*shiyoshin*" developed, and the patient died.

CASE 19.—Y. C., male, act. 19. The patient is of strong constitution. This was a mild case, and had been ill some thirty days. He was attending the hospital as an out-patient, continued his work, and did not appear much discommoded by his slight muscular paralysis. He had not reported himself for some ten days. He said he had been gradually growing worse for the last three days. Last night he was taken with pain in the bowels and distress in the chest. This gradually grew worse, and this morning he had several very copious movements of the bowels. He became faint and slight "*shiyoshin*" developed, when I was sent for. The paroxysm of "*shiyoshin*" had passed off before I reached the patient. The pulse was weak, there was marked pallor, the extremities were cold, and the patient was in a state of partial collapse.

Cases are frequently met with where the first prominent symptoms of kakke developed just as this did, with diarrhoea and distress in the chest. Such cases of "*shiyoshin*" are occasionally met, but diarrhoea does not generally accompany kakke; obstinate constipation is much more frequently met with.

Condition of blood: A large number of kakke micro-organisms were found in this patient's blood.

There was some oedema. The patient was at once given digitalis, strichnia, and whisky, and put upon an active course of cathartics and diuretics. The patient at once began to improve.

Summary.—There was no organic disease of the heart or arteries in any of the cases observed, and no functional cardiac derangement, except that due to the disease.

There are three characteristics in all kakke pulse tracings, viz.: (a) The very sudden and high upstroke of the ventricular systole. (b) The precipitous descent from the apex of the percussion wave. (c) Dicrotism.

The first deviation of the circulatory system in kakke from the normal is one of cardiac excitement. In the early stages of kakke, and in mild cases, the sudden and tall upstroke of the percussion wave points to a condition of *cardiac excitement*. The first complaints that kakee patients made along with that of anaesthesia and oedema of the legs is (*ikidoshii*) of cardiac dyspnoea.

The low condition of arterial tension is due to loss of *vaso-motor* tone, producing a relaxed condition of the arterial and capillary systems and permitting a free outflow from the arteries. This also is the chief cause of the precipitous descent from the apex of the percussion wave. This interpretation is in accordance with the teachings of clinical experience. The sensation imparted by the pulse to the finger on the artery is that the blood courses along the artery in distinct waves to be completely emptied in the interval. Also the sense of coldness of the extremities, which the patient experiences as the case advances, and the purple hue of the fingers and toes, denotes a loss of *vaso-motor* tone, with a relaxed condition of the capillary system and diminished cardiac power. The advance of the purple hue up the extremities during *shiyoshin* (and also frequently previous to and denoting the approach of *shiyoshin*), points also to continued loss of *vaso-motor* tone, with in-

creased relaxation of the vascular system and accumulation of blood in the capillaries.

The elements of danger in kakke are found in the impaired condition of the heart and circulation. It will be noticed that the relation which exists between the condition of the vascular system and the general condition of the patient is subject to great variation. (a) The tracings in some cases show very irregular action of the heart, an abnormal high and sudden upstroke of the ventricular systole with loss of arterial tension, when the general symptoms were not those of greater danger. This is a very common condition; and cases are frequently met with where this contrast is so great that the patient is considered suffering from serious functional derangement or neurosis of the heart, while the ordinary symptoms of kakke are so slight as to be passed by unnoticed. (b) Again, when the general symptoms were grave, the tracings often show but slight deviation from the normal. (c) However grave the general symptoms may be, so long as the condition of the circulation and respiration remain good, there is no occasion for alarm. But however mild the general symptoms may be, if the condition of the circulation is much impaired, the indications are those of grave danger. The physician must look to the condition of the heart and circulation in kakke to determine the elements of danger in the case.

The extent to which the heart and VASOMOTOR system are affected in kakke, is relatively subject to considerable change. The relaxed condition of the arterial and capillary system shows that the *vaso-motor* nerves of the sympathetic system are affected. (a) In some cases the sudden and tall upstroke of the percussion wave shows that the muscular grasp of the heart upon the contained blood is strong, giving a vigorous ventricular systole; while in the same tracing there is a precipitous fall from the apex of the percussion wave, a fully dicrotic or hyperdicrotic pulse with

greatly reduced arterial tension, denoting a marked loss of *vaso-motor* tone. (b) Again, in other cases with weak cardiac action, there is a measure of arterial tension. (c) My experience with the sphygmograph in kakke has taught me that loss of *vaso-motor* tone is fraught with graver danger than loss of cardiac muscular power.

When there is marked dicrotism, loss of *vaso-motor* tone, and a relaxed arterial and capillary system with free outflow, even though the sudden and high upstroke of the percussion waves show favorable cardiac power, *shiyoshin* is liable to occur at any time.

In the above condition the toiling heart may at any time become exhausted, the powers of circulation suffer a partial collapse, and the phenomena of *shiyoshin* be developed.

Addenda.—Kakke presents some peculiar features of interest for study and investigation, among which we may mention:

Age.—Age as a predisposing cause to kakke is readily admitted by those who have had some experience with this disease. The most susceptible age is from sixteen to twenty-eight or thirty-two. A very large ratio of those seen in general practice will be young men between the ages of seventeen and twenty-five. I have never met with a case under twelve years of age, and from extensive inquiry, have not heard of a case under eleven. Children appear to enjoy an absolute immunity from kakke. I have never met with a case over sixty-three years of age, and am informed that it very seldom occurs over sixty and never over sixty-five.

Recurrence.—One attack of kakke appears to render the patient more liable to subsequent attacks. A large number of those seen will state that they have suffered repeatedly from kakke in successive years. Many have had from three to five, seven, and ten attacks in as many successive years. Occasionally you will meet those who have repeatedly suffered from kakke, yet have one or two years' remission. Last year I

met with two persons, each of whom had suffered from kakke for the last twenty successive years.

Sex.—Women are much less likely to be affected with kakke than men. A common estimate among the Japanese for the number of cases of kakke occurring among women is 4-6 per centum. But this estimate is much too low. While women do enjoy a peculiar immunity from this disease, the difference between the number of women and men affected is not so great as would at first appear. Women generally have the disease in a much milder form than men; and many of them affected with kakke have it so light that they do not apply for medical aid. Of the number of cases recorded in my case-book, over 16 per cent. have been women; and an estimate of from 10 to 15 per cent. would be a close approach to the ratio of female cases occurring in kakke.

Puerperal Kakke.—Though women in general enjoy a marked immunity from kakke, yet in the puerperal state they are quite subject to this disease, and when taken in this condition it is attended with a marked fatality. Of the female kakke cases coming under my observation over 36 per cent. have been puerperal. Kakke may occur during lactation. In such cases it is not attended by special fatality; but it is very liable to occur shortly before or after child-birth, and in such cases it is most likely to be severe and attended with a high rate of mortality. Of such cases falling under my observation over 65 per cent. have been fatal.

Urine.—It is but seldom that traces of albumen are found in the urine of kakke patients. Of the cases coming under my observation, the urine of three or four contained for a short time a small quantity of albumen, that showed no traces of it after recovery. In almost all kakke cases the urinary secretion is diminished, and if the case is severe very markedly diminished. It frequently runs down to 900, 600, 300 cubic centimeters in twenty-four hours,

and occasionally as low as 200 or 150 c.c. In some cases under my observation it has run down as low as 100-50 c.c. in twenty-four hours for several successive days, yet no oedema occurred. But such cases are most likely to die. The importance of keeping up the secretion of urine to the fullest extent should never be lost sight of in treating cases of kakke. If the circulation is not specially affected and the secretion of urine can be kept up to a reasonable quantity of 900 or 750 c.c. per day, the case may be considered hopeful. But if this secretion runs down below 600 or 500 c.c. in twenty-four hours, and can not be brought up, the case should be considered doubtful; for though the condition of the circulation be good, with so small a secretion of urine the powers of the circulation will soon show signs of failure. The secretion of urine frequently ceases some hours before death.

Paralysis of the Bladder.—Partial paralysis of the muscular walls of the bladder are occasionally met with in cases of kakke, so that micturition becomes tedious and imperfect. But if the case progresses favorably this will pass off after some days. A few cases of complete paralysis of the bladder, a short time before death, have also come under my observation; when, although the patient had not urinated for some time, yet a reasonable amount was drawn off with a catheter.

FACTS REGARDING HEATHEN IGNORANCE OF THE HEALING ART.

[Abstract of a Paper by H. M. Scudder, M. D., in the Medical Missionary Journal.]

For many years I practiced medicine and surgery among the natives of India as part of my missionary work. There are no acuter intellects on the earth than theirs. In poetry, grammar, logic, mathematics, and especially in metaphysics, the Hindoos have displayed signal ability, but in the physical

sciences they are only babes. Nothing will more clearly illustrate this than a few allusions to the condition of medical and surgical science and practice among them.

WHAT DO THEY KNOW OF ANATOMY?

Absolutely nothing beyond what they see on the outside of a human being. Caste renders the dead body a source of ceremonial pollution, and nothing can be more repugnant to a well-born Hindoo than dissecting. Hence his notions of the structure of the body are exceedingly fanciful. He soberly declares that the human frame is built upon a skeleton which contains the moderate number of 4,448 bones. He furthermore asserts that in consequence of this, man is obnoxious to 4,448 diseases; a disease for each bone being a logical sequence. He maps out for you the whole inner man, though he has never examined it. He affirms it to be an organism permeated

BY TEN LARGE TUBES.

He describes tubes starting from the pelvis, part of them running upwards to branch out in the trunk, and part downwards to terminate in the big toes. He describes tubes which shoot across the body, diagonally, tubes which form circles, tubes which build arches, tubes which develop into canopies, and tubes which by their convolutions constitute regal seats upon which are enthroned certain Hindoo deities. He describes tubes which end in the eyes and ears, in the tongue and in the bones. The ten principal tubes ramify into the exact number of twelve, 72,000 divisions.

WHAT DO THEY KNOW OF PHYSIOLOGY?

One statement shall suffice. In the ten chief tubes, just mentioned, play ten vital breaths or winds. One breath, moving through its tube causes man to respire; another, urging its way through its tube, forces him to hiccough, and another makes him sneeze; another enables him to bend and stretch, another leads him to wink,

another produces smiles, and another elevates the chyle.

WHAT DO THEY KNOW OF PATHOLOGY IN ITS VARIOUS DEPARTMENTS?

As to the enumeration of diseases, I have already stated that there are just 4,448. As to the causes of disease, they are amusing, if not correct. If a man spits upon the hearth-fire, or into a pan of burning coals, he will get asthma. (Would that some such consideration would frighten and restrain the tobacco chewers and spitters of this country.) If a child has thin legs, a large head, and a prominent abdomen, it is because a toad has sometime fallen upon the luckless youngster; and the way to heal him is to catch a toad and confining it for three days in a new waterpot, to draw water from the pot for the daily ablution of the child. The evil eye of a stranger, the sorceries of an enemy, the incantations of a witch, or the hostility of a demon that haunts a neighboring tree or cemetery, are considered efficacious causes of disease. If a mother has a fine, fat babe, she fears even the incautious laudatory remark of a friend. "Your babe is plump and pretty, and eats well," says an admiring female acquaintance. Alas! some malady will fall upon the infant, and to avert it, the troubled mother heats an iron and plunges it hissing into water, with which water she afterward washes the child's face. The Hindoo physician, when no other assignable cause occurs to him, finds a convenient refuge in rat bites. In my dispensary, a patient gravely declared that he was suffering from a pain in his ribs, because twelve years before a naughty rat had nibbled one of his toes. In such cases I gave a decoction of sarsaparilla with iodide of potassium, and found it very successful.

WHAT DO THE HINDOOS KNOW OF THERAPEUTICS?

They, of course, know something of the effects of certain drugs, used separately, or in combination. Especially do the Mohammedans, whose Arabian antecedents are in

their favor, concoct some good medicines. Moreover, it must be allowed that the Hindoos with their remedies can treat such a disease as "the country sore eye," a form of ophthalmia peculiar to that part of the world, as well as we can with our Western methods; but their utter ignorance of anatomy, physiology, and pathology, and their feeble power of diagnosis, render, in almost all cases, their application of remedies a hit-and-miss practice, in which the missing is the law, and the hitting is the exception. They are zealous dabblers in drugs, inveterate dosers. This is to be expected. The less the man knows, the longer will be the list of his remedies, the more complicated and heroic will be his prescriptions.

Hindoo medical science leans strongly upon magical incantations. A Brahmin once came to me with an immense abscess. He had for a long time endured intolerable agony from the pressure and the tension upon certain nerves. Night after night his medical advisers had muttered their conjurations over the incorrigible swelling, of the nature of which they knew nothing. One plunge of the lancet let out his pain and a stream of pus, to the amazement and mortification of his doctors.

If a person is bitten by a dog the part is to be well slapped with an old shoe, and then treated with burned shoe-leather and the recitation of a magical formula.

If an individual is stung by a scorpion, in order to find relief he dispatches a friend to pronounce in a whisper a mystic verse in the ear of a male buffalo calf. The buffalo is a domestic animal in India. By the time the messenger finds the village herd of buffaloes, selects a male calf, catches it, constrains it to listen to his whispers, and returns, there can be no doubt that the pain of the scorpion sting is mitigated.

Their medical and surgical practice abounds in ridiculous remedies.

If a fishbone sticks fast in one's throat, help may be obtained by worshipping a black cat. Some families that are fond of fish keep black cats for that purpose.

A remedy is sometimes to be applied, first externally and then internally. In case of a local pain on the exterior of the body, one should first apply a poultice of hot rice and oil, and then after it has become cold, should swallow the poultice, thus bringing the healing agent to act on both sides of the pain (the same poultice, first outside, secondly inside). If the pain can hold out against that, it must be considered incorrigible.

Great faith is reposed, in a variety of disorders, upon the efficacy of rhinoceros horn, triturated on a stone and mixed with milk. Also peacock feathers stewed in oil are affirmed to be a soothing application for gunpowder burns. There is some poetry in this, if no curative energy, for what can be more significant of irresistible assault upon disease than the horn of a rhinoceros in the hand of a Hindoo physician, and what more suitable to grace his triumph than the brilliant plume of a peacock.

I will cite one prescription, still more strange, and which is designed to act mechanically. In case the uvula becomes elongated, and the doctor fails in reducing it to its normal state by squeezing the juice of some leaves on the crown of the head, he must select the three central hairs on the top of the head, and seizing them must suddenly and forcibly twitch them upward, in order to bring the refractory little organ into its right place.

WHAT DO THE HINDOOS KNOW OF SURGERY?

Less than of medicine. Totally ignorant of anatomy, what can they do? The barber sometimes screws his courage up to the point of experimenting on a boil with his razor, while his coadjutor, the potter—for these two, the barber and the potter, are the surgeons—can do up a broken limb in rude splints, which he binds so tightly as often to maim the member altogether. The Musselman, belonging to a fierce race, ventures to make a plunge in the eye at an opaque lens. This is done thus: The person with cataract is made to stand. The

Musselman, armed with a shoemaker's awl, takes position in front of his victim, and tells him to look up. As the eyeball moves up, he dashes the awl into it, just below the cornea. This barbarous operation sometimes succeeds, and generally does not.

The deliberate villainy of native practitioners is astounding. The main object with most of them is to extort money, and they play in a thousand ways upon the fears and credulities of those who employ them. They are full of lies and chicaneries of every sort. A girl was brought to me who was suffering from an alveolar abscess, caused by a bad tooth. There was an external opening through the cheek. Her friends told me that the native physician declared that the disease was caused by the existence of a number of dead flies in the centre of her head, which must be extracted through the ear. He therefore visited her periodically, and working at her ear, and giving her sufficient pain to make the extraction of a fly appear a marvelous operation, he produced the insect, which he held concealed in his hand. I have forgotten how many flies he thus took out of her head; there were several. For each of them he made her parents pay handsomely.

Imagine the physical miseries which are the fruits of such malpractice. Pitiable, indeed, is the condition of the sick and the diseased in India. The council that deliberates for them, consists of the physician with his potions, the stupid barber and the Musselman with their surgical case containing a razor and an awl, the exorcist drawing his circles and going through his list of trickeries, the astrologer with his book art of which he cites the prognosis that he pretends to have read among the stars; and the wretched patients are to be dosed with the compound tincture of quackery, witchcraft, and astrology prepared by this juggling college of physicians. I may well quote in this connection a proverb current in Hindooostan: "He who has killed off ten patients is a perfect doctor."

INVERSION IN SUSPENDED ANIMATION DURING ANÆSTHESIA.

Professor JULIAN J. CHISOLM, in a paper entitled "A Very Valuable Lesson for Those who Use Anæsthetics," read before the Baltimore Academy of Medicine on December 6, 1887, relates several cases in which inversion of the patient was successfully used in suspended animation from chloroform anæsthesia.

The first and most interesting case was that of a boy three years of age, upon whom Dr. Chisolm wished to operate for cancer of the left eye. When the anæsthesia was complete the operation was begun, but before much progress had been made respiration suddenly ceased. The face assumed a death-like pallor, and the pulse disappeared from the wrist. Immediately the child was suspended by the feet, with body and head hanging down at an inclination of 70 degrees, while an assistant made chest-compression for artificial respiration. After a few minutes signs of feeble respiratory movement were noticed, a slight throbbing of the neck-vessels was detected, and in time the child evinced its return to consciousness by crying. The child would not permit the eye to be touched without moving the head, and as the operation had to be completed chloroform was again administered. Before the operation was begun a second time the child again stopped breathing and the pulse disappeared. The body, apparently of a dead child, was once more hung up by the feet, so as to allow blood to gravitate toward the anaemic head and brain, but with no further attempts at artificial respiration. After a few minutes the large vessels at the root of the neck showed some fullness; then a slight thrill, and after this the first attempt at a thoracic movement appeared. In ten minutes breathing was sufficiently strong to allow the child to cry again.

Chloroform was given a third time, and was very soon followed by suspended animation, and death now seemed to be

complete. The child was again hung up by the feet. After a little more than five minutes a faint effort at respiration was seen, and when it seemed fully established, though insensibility continued, the child was replaced on the table. As soon as the body was placed in the horizontal position the pulse, not yet strong, disappeared from the wrist, and respiration ceased, requiring a renewal of the suspension. This was repeated three or four times.

Finally the eye was enucleated while the child was suspended with the head downward. It was fully a quarter of an hour after the operation was completed, and the eye bandaged, before the child could be trusted in the recumbent posture; and in all the child was suspended about three-quarters of an hour.

For ten years Dr. Chisolm has not given ether to any patient. For painful operations of very short duration he uses bromide of ethyl, but for all other he gives chloroform exclusively. He has administered chloroform about 10,000 times, and has never had a death. In the administration of the anaesthetic certain rules are followed: All clothing must be loose around the neck. With adults an ounce of whisky is given in advance, though this cardiac stimulant is omitted in persons under thirty years of age, unless the patient be feeble. In old persons, with feeble and irregular heart, the amount of whisky is increased. The whisky is always put into the patient's stomach, where it can be used if needed, and where it can do no harm if it is not needed. Dr. Chisolm has never had occasion to inject whisky or ether into the rectum or under the skin.

Chloroform is administered with the patient lying on his back, and, as soon as narcosis is induced, the pillow is taken from under his head, so as to have him lie in an absolutely horizontal position. Should snoring occur, indicating some difficulty in the pharyngeal breathing, the chin is drawn forcibly upward. This elevation pulls the anterior wall of the

pharynx, with the hyoid bone and root of tongue, forward, making for the air a clear and straight passage from the nose into the lungs. By this movement of the chin respiration becomes immediately quiet and easy. The pulling up of the chin is a much more efficient and convenient means of pulling the root of the tongue forward than by pulling out the tongue with a dressing forceps. It is not always easy at this stage of anaesthesia to get into the mouth, as the lower-jaw muscles may not be relaxed. A proper tongue-forceps is not often at hand, and to tear the tongue-substance with sharp-toothed and yet slipping instruments, with the soreness and swelling that subsequently follow, is an abominable practice that should be abolished. The patient's chin and your own hands are always present, and it only needs knowledge of the method to apply it, and to secure prompt and speedy relief.

The form of inhaler used by Dr. Chisolm is a towel folded cone-form, with the apex of the cone open, so as to permit air to mingle freely with the chloroform vapor. During the administration the surgeon watches the patient's face, and, if the ears remain pink, the heart and lungs must be working properly; therefore there is no need for feeling the pulse. Any failure on the part of either of these organs can be seen in the change of countenance and complexion more quickly than it can be felt at the wrist. In Chisolm's clinic chloroform is denied to no surgical patient that needs a more efficient anaesthetic than a local one, such as cocaine. No pathological lesion in any part of the body deters him from the use of chloroform in an eye-operation, should it be required. He has operated about 1,500 times for cataract, and previous to the last two or three years, since cocaine came into use, he gave chloroform for all cataract operations. Probably the average age for cataract patients is sixty years; and most frequently they exhibit decided senile changes. Many of his cataract patients

must have had fatty heart. So far, after thirty years of active surgical life, Chisolm says that in no single case has he had cause to regret that he chose chloroform as the anæsthetic. He always gives it in the presence of physicians—never alone.

His experience with four cases of sudden arrest of respiration, with failure of the heart's action, has made him a firm believer in the efficacy of inverted suspension for the restoration to life of patients apparently killed by chloroform; and he believes that many of the dead from chloroform might have been saved had the surgeon hung the patient up immediately by the feet, or held them in such a position that the head would have been very low, so as to get all the advantage of gravity in forcing the blood to the anæmic brain, instead of wasting time in applying hypodermic injections, cold-water splashings, spanking, electricity, etc., or even attempts at artificial respiration. Do any or all of these if you will, but hang the patient up first, and that immediately, as soon as the heart and lungs fail. It is the horizontal position that is fatal in chloroform-poisoning, and leads to death if the body is kept in it, as all reports of fatal cases with chloroform show. By suspended animation he refers to the complete arrest of all respiratory movements; not that very feeble state of heart and lung action, accompanied by pallor of the face, which only foreshadows approaching vomiting. This condition is common with many chloroform patients, but is only a signal that the basin must be held in readiness.

These views in regard to the value of inversion in suspended animation from anæsthetics, are in accordance with the results of Nélaton's experiments on chloroformed rats, which show that in chloroform narcosis, the respiratory and cardiac centres are weakened by an anæmic condition of the nervous apparatus, the exposed brains of animals bleaching as chloroform vapor was inhaled by them to complete anæsthesia. When a number of rats had been thoroughly

narcotized with chloroform, those that were hung up by the tails slowly revived, while those left lying on the table died. And if, when animation began to show itself in the suspended animal, the rat was taken down too soon, breathing would again cease, and the rat would die unless immediately suspended again. When the animals were not already dead, suspension was the only means that would prevent death.

Of course no one that knows what he is about will ever give an anæsthetic without having some one present. Should there be any sudden and alarming weakening of the heart's action, and of respiration, for they always go together, hang up the patient without a minute's delay. Should the patient be bulky, and should there not be help enough present to elevate the foot of the table or bed, throw the head and body over the side of the table or bed, letting the head hang downwards to receive all the blood that can gravitate into it, holding on to the legs so that the body shall not slide to the floor. A still more efficient plan is, whether the patient is a man or a woman, while you stoop, throw their legs over your shoulders, hang on to their feet in front of you, and then lift yourself up. The patient's body, as you get upon your own feet, will hang from your back, with head down; and now, if you want more help you can call for it. But never leave the patient in a horizontal position while calling for help or doing anything else. If the patient vomit while inverted no harm can result, and the matters from the stomach cannot get into the larynx.

DIVERTING THE URETERS AND REMOVING THE BLADDER.

The futility of partial operative measures in cancer of the bladder seems to be established. In Vol. XVI, of *St. Thomas' Hospital Reports*, Mr. WALTER EDMUNDS and Mr. CHARLES A. BALLANCE have a contribution on the "Best Method of Diverting

the Ureters and Removing the Bladder, as shown by experiments upon the Cadaver."

The authors think that malignant disease of the bladder should be looked upon in exactly the same way as cancer of other organs or parts of the body that are not essential to life; in other words, a radical removal of the diseased organ should be undertaken in suitable cases, rather than a scraping, nibbling, or incomplete operation that is certain to be followed by a rapid recurrence of the growth. They hold that as soon as the diagnosis of cancer is certain, by exploration or otherwise, a much more complete operation should be undertaken than is at present in vogue. At best, they believe, the bladder is merely an organ of convenience, and one by no means necessary to life. A man would be better off without a bladder than with one that harbored a cancerous graft. Not a few persons go about comfortably with one urinary sinus; why should not others go about with two? Moreover, when the ureters are diverted the bladder no longer has any active function to perform—it exists simply passively in the body, and its blood supply diminishes in obedience to the lessened physiological activity of the parts; so that, in a given case, if it were decided to divert the ureters and leave the bladder alone, the surgeon might well anticipate a general shrinkage of the parts and a temporary arrest of the disease, or a slower growth of it, as happens in cancer of the rectum when the faeces are diverted by complete division of the colon. Furthermore, it may be noted that in cancer of the bladder, lymphatic gland infection seems to occur only at a later stage, a fact that tells in favor of radical treatment.

The method proposed and recommended is as follows: 1. The first step is to divide and bring out the ureters. They had best be treated on separate occasions, and thus two preliminary operations would be required before any interference with the bladder is attempted.

The ureter can be reached by an incision

through the front of the abdomen, somewhat similar to that for ligaturing the common iliac artery, but the most convenient position for the incision, without allowing for variations in the size of different abdomens, is as follows:

The incision is curved with the convexity outward; it commences vertically above the spine of the pubes, at the level of the junction of the middle and lower thirds of an imaginary line connecting the umbilicus and symphysis pubis. From this point it extends outward and slightly upward to within an inch and a half of the anterior superior spine, then upward, and lastly upward and inward in the direction of the umbilicus, until a point is reached vertically above the commencement of the incision. The abdominal parietes external to the rectus are then divided until the peritoneum is reached. The skin and fascia over the rectus corresponding to the incision directions are cut through to give room, but the muscle and its sheath should be left intact. The peritoneum can then be reflected from the iliac fossa until the ureter is seen attached to the peritoneum in the region of the common iliac artery. It adheres by means of some areolar tissue to the peritoneum. If this be not borne in mind the operator will look in vain for the ureter.

When found, the ureter is followed down toward the bladder, and no difficulty will be experienced in applying a double ligature of silk to it at a distance of from a half to an inch from the spot where it enters the bladder wall. It is then to be divided, and the proximal end brought up into the iliac fossa. Next, the lower end of the upper portion of the ureter must be brought to the surface of the body, and this is best effected through a *separate incision*. The position of the opening should be immediately over and about half an inch behind the crest of the ilium—a point that is at least four inches from the large incision. The ureter should be passed through an opening made here,

which should be just large enough to admit it, and should be secured by fine silk sutures, half an inch or more of the tube being caused to project beyond the surface of the skin. Care must be taken to separate the ureter from its bed for a short distance above the brim of the pelvis, so that it may pass to its new outlet by a gentle curve, and not be bent near the iliac artery at a right angle. It is necessary, too, that the ureter be caused to lie in contact with the posterior muscular boundary of the abdomen after it has been displaced from its old position, so that the parietal peritoneum and the intestines may readily fall back again against the quadratus and the psoas, and into the iliac fossa.

It need hardly be added that great care should be taken to aseptise the upper end of the distal portion of the ureter, that the lesser wound should be securely sealed, so that it may not be the cause, by inward leakage, of infection to the greater, and that the two wounds should be entirely shut off from each other—the larger wound being kept antiseptic and free from the contamination of the smaller at which the urine would flow from the ureter.

Excision of the Bladder.—At the proper time, after diversion of the ureters has been done, the bladder may be excised by the supra-pubic method. A vertical incision is made from the symphysis to about half way up to the umbilicus, the lower border of the peritoneum is found, and the membrane is then reflected off the bladder. This is easily done as far as the entrance to the ureters by means of the fingers, and by the aid of a pair of curved, blunt-pointed scissors to snip off any areolar tissue that cannot be overcome by gentle manipulations with the fingers. The anterior lateral and posterior walls of the bladder are now free from all attachments, and can be removed at the will of the operator. It is not desirable to take away more than the mucous membrane in the region of the trigone in consequence of the vascular and other important relations of the base of the

bladder and prostate. Fortunately, carcinoma is limited at first to the mucous membrane, and this can easily be peeled off at the base of the bladder from the muscular coat.

As the ureters extend to the surface of the skin, stricture of one or both of the apertures of exit would not be likely to occur, so that the patients subjected to the plan of treatment above described would be measurably free from the dangers of hydronephrosis and other affections that ensue when urine is directed away from the ureter in other ways and under other circumstances, and that are the common consequences of the obstruction that follows prolonged cystitis, *e.g.*, in cases of extrophy of the bladder and chronic untreated urethral stricture.

For placing a double ligature upon the ureter deep in the pelvic cavity good light is necessary; electric light or strong bright daylight should be used, and directed into the wound by hand mirrors.

The authors call special attention to two points: 1. The good results that would probably follow complete diversion of the urine from the bladder in cases of cancer, quite independent of any further operation upon the organ; under this circumstance a partial operation even would probably be followed by better results. 2. Double urinary fistulæ and their effects upon the kidney should be thoroughly studied upon animals before the operation is attempted upon a patient.

OPERATION FOR ABSCESS OF THE SPLEEN.

Dr. CARL LAUENSTEIN, of Hamburg, reports a very interesting case in the *Deutsche medicinische Wochenschrift*, of December 22, 1887, the first case, in fact, of a cutting operation for abscess of the spleen on record.

The patient was a coppersmith, 23 years of age, who entered the Seaman's Hospital, in Hamburg, on September 17, under a diagnosis of typhoid fever, after having been

sick for fourteen days. He was in a febrile condition, with a pulse of 96, tongue red at the edges and white in the centre, had been suffering with diarrhoea, and his abdomen was somewhat tympanitic. Splenic dullness was very much increased, extending in the axillary line from the lower border of the fifth rib forwards and downwards to the free border of the ribs, and backwards to within less than an inch of the spinal column. From the middle line forwards it encroached on the region of normal cardiac dullness, and over the somewhat enlarged dull region of the left lobe of the liver. The spleen was not palpable through the abdominal wall, since the patient did not use the diaphragm in respiration, and during inspiration there was some retraction of the epigastric region instead of expansion of the abdomen. The patient complained somewhat of pain in the splenic region, though there was no sensitiveness on pressure. There was no pulmonary abnormality, except an unusually high position of the diaphragm, and some friction sounds at the boundary of the base of the left lung.

Under a fluid diet, wine and hydrochloric acid internally, and the wet pack externally, the condition of the patient was not materially changed. The temperature fell in the morning, and rose in the evening to 39° C. Three days after entering the hospital the patient had a severe rigor, with a rise of temperature to 40° C., very small pulse, 128, and cyanotic lips. He then complained of increased pain in the splenic region, the dullness of which was not increased forwards and downwards, but above and behind was markedly increased. The dullness reached about one and a half inches above the angle of the scapula, and had an extent of thirty-five by eighteen cm. With the exception of the fixed condition of the diaphragm, and the marked friction sound at the base of the left lung, there was no abnormal thoracic condition.

On the day after the rigor there was a severe collapse, with a fall of temperature

to 35.4° C., small pulse of 72, and coldness of the extremities, from which the patient was aroused only after the use of stimulants and heat. As the pain in the splenic region continued after the rigor, Lauenstein concluded that there was a purulent collection in the spleen; and on the fifth day after the patient entered the hospital he operated.

After the patient was anaesthetized the needle of the Dieulafoy aspirator was inserted in the eighth interspace in the axillary line, at the site of spontaneous pain, and about the middle of the anterior portion of the splenic dullness. The needle was pushed perpendicularly downward about two fingers' breadth, but no fluid was obtained until it was withdrawn carefully about two cm., when a small quantity of chocolate-colored fluid escaped, which had a penetrating foetid odor. The needle was kept in place, and in order to empty the abscess thoroughly about ten cm. of the ninth rib were resected, this rib being selected in order to avoid wounding the pleura. In order to avoid haemorrhage the thermo-cautery was used to cut down under the resected rib and parallel to it. Though the spleen was lying close to the diaphragm it was not adherent to it at the place of incision. After the cautery was carried down about two cm. into the splenic tissue a chocolate-colored fluid welled up by the side of the cautery. The incision in the spleen was now widened to the extent of the resection of the rib, and the borders of this incision were brought up against the wall of the thorax and fixed there by means of sharp hooks.

When the finger was introduced into the incision in the spleen it entered a cavity about the size of a goose's egg, the walls of which were very friable, and in which several loose fragments of tissue were found, that were removed with forceps. The cavity was washed out with cold salicylic acid solution, and then tamponed with iodoform gauze; the whole was then covered with an antiseptic dressing. Microscopic examination showed that the

pus contained in the cavity was composed of pus-cells, some red corpuscles, fatty acid crystals, and crystals of haematin. No pus cocci or typhoid bacilli were found in the pus. The dressing was renewed on the fifth day after the operation, when it was seen that the spleen was adherent to the thoracic wall and to the diaphragm. Splenic dullness was at this time much lessened. For several days after the operation the temperature was about normal, but then rose, and the subsequent course of the illness was that of a case of typhoid fever. On October 11, the patient was entirely free of fever, but had the characteristic paleness, emaciation, and ravenous appetite of a typhoid convalescent. At the middle of October the cavity in the spleen had filled with granulations, and the thoracic wound was almost cicatrized. When the patient left the hospital on November 5, the area of splenic dullness was about 16 x 11 cm.

Lauenstein thinks it likely that the abscess was embolic, and it is known that embolic abscesses are most frequent in the course of the infectious diseases, such as scarlatina, diphtheria, typhoid fever, and pneumonia. Without the operation the termination of this case could scarcely have been otherwise than fatal, from rupture and purulent peritonitis, or rupture into the pleural cavity. Lauenstein thinks that in this case the abscess was one arising in the course of typhoid fever, and that the most rational and most surgical treatment was the one adopted. For the treatment of such abscesses conclusions must be drawn from the results of treatment of abscesses of other internal organs, especially of the liver. The best results in abscess of the liver have not been obtained by puncture or aspiration, but by free antiseptic incision, the mortality of the Lindemann-Landau and Volkmann operations, which are by free openings, being, according to Lauenstein, only 4.7 per centum. While Barbieri and Parzewski cured two cases of abscess of the spleen by puncture and aspiration, in both cases the splenic

enlargement and abscess were accessible through the abdominal walls, which was not true in Lauenstein's case.

Lauenstein calls attention to the two important steps in his operation :

1. Puncture before incision, by which the danger of an escape of the purulent contents from the distended cavity was avoided.

2. Leaving the cannula in the abscess until the opening was completed, so that it served for a guide for the thermo-cautery. He also regards it as a wise provision of nature that fixed the diaphragm so completely before the operation. Had the diaphragm continued to work as usual it is almost certain that the abscess would have been ruptured, and the contents extravasated. The circumscribed pleuritis, also, at the base of the left lung was a consideration, since it caused adhesion between the diaphragm and the costal pleura, without which the pleural cavity would probably have been opened at the operation, which would have seriously complicated matters.

Lauenstein gives the following points in the diagnosis of abscess of the spleen, besides the presence of an infectious disease, changes in temperature, rigors, etc. :

1. Enlargement of the area of dullness.
2. Spontaneous painful sensations.

3. Inflammatory phenomena in the region of the spleen, basal pleuritis, and fixed position of the diaphragm. Fluctuation must not be waited for, since it can be detected only in case the enlargement is below the free border of the ribs.

AN INTERESTING CASE OF CHOLECYSTOTOMY, WITH RECOVERY.

On February 14, M. POLAILLON reported to the Academy of Medicine, of Paris, a case of cholecystotomy performed by M. TERRILLON, and followed by recovery.

The patient was a woman, *æt.* 24, who had had no previous liver trouble until she noticed a tumor in the right side, which was easily felt below the free border of the ribs by Terrillon. It was very large and

extended to a point below the umbilicus. The skin over the tumor was normal, the umbilical cicatrix regular, and there were no enlarged subcutaneous veins. Palpation showed the tumor to be as large as the head of a foetus, tense, elongated vertically, smooth, and very movable transversely. It did not appear to follow the respiratory movements. Its extent was easily made out by percussion. Its dullness was co-extensive with that of the liver; in other respects percussion of the abdomen was normal. There was no icterus, no pain, and no serious inconvenience of any kind, though there was some dyspepsia and emaciation. The urine was normal.

It was evident that the tumor was connected with or adherent to the liver. No exploratory puncture was made, but Terrillon determined to make an exploratory laparotomy. The operation was performed on November 23, 1886. A median vertical incision was made, about four cm. long, and afterwards enlarged to eight cm. When the abdomen was opened the lower border of the liver was easily seen, as it was lower than normal. Co-extensive with the lower border and attached to the inferior surface was an elongated tumor, which descended very low, had bluish walls, was very fluctuant, and of a cystic appearance. The exploring finger showed that the tumor was the distended gall-bladder. Puncture with a capillary trocar gave issue to a liquid as clear as water, but a little thicker, the last drops of which were of a milky whiteness. It was then found that the bladder contained a calculus as large as a cherry. The bladder was then drawn partly out of the abdomen, sutured to the abdominal wound, and opened. Its walls were very vascular, and haemorrhage was guarded against by means of forceps, and the cavity was explored.

The calculus first found was easily extracted, though it was adherent to the bladder by a thin filament. The exploring finger then found at the summit of the bladder a second calculus imbedded in the

mucous membrane. It was so deeply imbedded that at the distance it was from the opening it was impossible to detach it; the bladder was drawn farther out, so as to lessen the depth of the cavity, when the stone was removed in fragments with the forceps.

Having resected a portion of the base of the bladder, the operator sutured it to the abdominal wall, making a biliary fistula in which two drainage-tubes were placed; a dressing was then applied. In about a month the fistula was so far closed that it admitted only a very small filiform bougie. Bile flowed abundantly from this orifice, generally between 9 p. m. and 2 a. m.—about four hours after the last meal of the day. Two cauterizations with the thermo-cautery caused the fistula to close completely two months after the operation. Meanwhile the patient had gained flesh, and had completely recovered.

In commenting upon the case M. Polailon says that generally the most favorable incision for cholecystotomy is one along the external border of the rectus muscle of the right side. But in order to have more room one must sometimes add to this a more or less transverse incision a little below the border of the costal cartilages. Terrillon's incision, however, was primarily intended for an exploratory laparotomy. Opening the gall-bladder may cause haemorrhage, which must be controlled by means of haemostatic forceps, or to extravasation of bile, which must be prevented at all hazards by drawing the bladder out and protecting the peritoneum by aseptic sponges. Suture of the abdominal wall completes the operation in cases in which there is no calculus. A biliary fistula is established, and the most pressing danger, intra-peritoneal rupture of the gall-bladder, is averted.

When there are calculi, these must be removed, and the operator must remove all obstructions from the cystic and common duct, so that the bile may escape normally into the intestine. Extraction of the calculi is sometimes a serious difficulty, and

Fauconneau-Dufresne recommends diminishing their size by crushing with a small lithotrite. Sometimes it is very difficult to tell during the operation whether all the calculi have been removed, and if all are not removed the operation does not accomplish its end.

The mortality of cholecystotomy, excluding the fatal cases not due to the operation, is about 16 per centum. It is then a serious operation, but it must be borne in mind that it is performed on patients whose lives are actually in danger. Polaillon advises that the operation be always preceded by an exploratory puncture, so as to confirm the diagnosis. The Academy adopted the conclusions drawn by Polaillon.—*Bulletin de l'Académie de Médecine*, No. 7, 1888.

PERSONAL HEALTH-RULES IN TIME OF CHOLERA.

Sanitätsrath Dr. PAUL SACHSE, of Berlin, acting on what he believes to be a well-grounded supposition that cholera is due to the cholera bacillus, has made out a set of health-rules, to be freely distributed in time of cholera, so that "everyone can carry a copy in his pocket, and hang one on his mirror, or on the wall like a calendar." The rules are as follows :

Cholera is caused by infection by the microscopic organism called the comma-bacillus, on account of its peculiar form in cholera. These get into the human intestine, increase rapidly under favorable circumstances, and cause the peculiar symptoms of cholera, which always begins with an apparently harmless diarrhoea, that continues for several hours before the disease breaks out with force and becomes dangerous to life.

The possibility of infecting one's self in time of cholera with the bacillus is increased a thousand fold by assemblages and intercommunication of people. The outbreak of the disease is favored by anything that causes any stomach or intestinal trouble.

Since we have no absolutely certain means of controlling cholera after it has broken out, we should especially beware of becoming infected, and should take all precautions to kill, or at least to render as harmless as possible, the cholera germ before it gets into our bodies ; and by a regular mode of living and prudent deportment avoid anything that can disorder the digestive apparatus.

Since the cholera germ gets into the stomach and intestines by way of the mouth, we should take care :

1. To take only cooked food and drink. This is the most important rule. Even the water used for washing, rinsing, and bathing should be free from germs, and in cities water from wells should never be used, but only that from the city water-pipes.

2. To keep the body clean, and especially the hands, by frequent washing, especially before meals ; and this should be done with disinfecting solutions, such as a 5 per cent. solution of carbolic acid (or a $\frac{1}{2}$ per cent. solution of sublimate), and of this in time of cholera at least a quart should be used for washing the hands.

3. To live judiciously and carefully in time of cholera; and

(a) Not run away.
(b) Not to harbor people from cholera places.

(c) Not to visit a house in which there is cholera.

(d) Still less to eat or drink anything in such a house.

(e) Especially to take nothing, food, linen, laundry, playthings, or anything else, from houses in which there is cholera.

(f) To avoid in every way anything that may disturb digestion. Therefore :

Avoid taking cold, and sudden cooling off after being heated.

Do not sit up late at night with friends (drinking cold beer, for example).

Do not wear clothing that is very thin, and do not take off underclothing suddenly.

On no account bathe in running water.

Water-courses often bear the germs of cholera.

Avoid collections of people, fairs, festivals, etc., of all kinds.

4. All kinds of food are to be avoided that may cause catarrh of the stomach and intestines ; so also, over-eating and over-drinking are to be avoided.

What may one eat and drink ? What is forbidden ? What allowed ?

FORBIDDEN ! !	ALLOWED.
Unboiled water.	Boiled water, with or without cognac, arrac, or red wine.
Raw milk, raw cream, sour milk, and whipped cream.	Good soda or seltzer water, and natural mineral waters.
Butter and buttermilk.	Red wine.
Fresh baked bread.	Good lager beer.
All cold soups.	Coffee, tea, cacao.
Cold cut meat that has stood for a long time.	Baked bread must be heated for one-half hour before being used.
All kinds of salad.	All well-cooked soups.
Mayonnaises and crèmes.	All hot (boiled, roasted, or stewed) meats.
Raw fruit, and unfermented fruit-juices.	All kinds of cooked vegetables (potatoes, rice, asparagus, green peas, cauliflower, and macaroni).
Cheese.	Fresh-cooked, warm compôtes.
Cookies.	Eggs, and egg preparations.
Ice.	Puddings.

GOOD DAILY DIET.

Early Breakfast.—Coffee, tea, or cocoa (with or without well-boiled milk), eggs, bread that has been well heated and dried in an oven or stove for one-half hour (bread that has been cooked a second time) *without* butter.

Breakfast.—Bouillon with egg, bread as above, warm meat, wine.

Noon meal.—Hot soup, boiled, stewed, or roast meat, vegetables, fresh cooked compôte, red wine, or good beer.

Tea.—Coffee or tea.

Supper.—Tea, or soup made from the meat left over at the noon meal, with the morning's bread, or warm meat. Wine or beer as above.

5. Every irregularity of the body should be most strictly guarded against in time of cholera. Apparently slight diarrhoea should on no account be neglected, but a physician should be consulted at once.

ANTISEPTIC AND ANTIPYRETIC TREATMENT OF PHthisis.

Dr. W. H. SPENCER, in a paper read before the Bath and Bristol Branch of the

British Medical Association, gives the complete records of two cases of acute tubercular phthisis, treated antiseptically and antipyretically, one of which died of profuse haemoptysis just as recovery was almost assured ; the other recovered completely. Both cases passed into acute tubercular phthisis from acute pneumonia.

In the first case a mixture of sulphuric acid, bark, and ether was used pretty continuously throughout the case, and along with the other remedies. Cod-liver oil was taken at intervals and for short periods, but it was not well borne. Kairin and quinine were used as antipyretics. The former always quickly reduced the temperature, and effectually ; but, as is usual with all antipyretics of its class, the fall of temperature was transient, and the resulting depression was marked. Quinine was used in large doses at intervals only, and for a short time, without any effects as to the general progress of the case. For general treatment in the second case, a mixture of sulphuric acid and quinine (four grains), or one of perchloride of iron and quinine, was used almost throughout the case. Cod-liver oil was borne well, and taken for a considerable time. Salicylic acid and quinine were used as antipyretics. The former produced good effects as regards steady and continuous reduction of temperature. But, notwithstanding its combination with ether, the depressing effects were sometimes a source of anxiety. A special feature in the treatment of these cases was the method of using quinine, in moderate doses, to control pyrexia—a method attended with unqualified success.

The local treatment consisted in the use of, first, iodoform, which was given in pill form in doses of one grain, six grains in twenty-four hours. It was given for long periods in both cases. In the second case it was given alone, and was well tolerated. In the first case it was combined with one grain of quinine, and one-eighth grain of hydrochlorate of morphine, but no advantage was gained. On more than one occa-

sion the attempt was made to increase the dose to two grains, but this always caused pain and gastric distress. The iodoform was taken by this patient for nine months continuously, with the exception of two weeks. Secondly, inhalation of vapor of the oil of eucalyptus. This was used only in the second case, and here along with the iodoform. The vapor was inhaled by means of a celluloid respiratory inhaler, worn continuously except when taking food or sleeping. No nausea or other unpleasant effect resulted. Finally, a liberal diet was allowed throughout the cases. As soon as the patients began to experience the good effects of the iodoform, the appetite improved remarkably, and good food was supplied without stint. From an early period after the return of the appetite some stout was taken with the dinner.

As regards the general principles of the treatment, everyone knows what they are. But as regards the special methods of the treatment by iodoform and eucalyptol, or both together, let me say :

1. I see no reason to doubt that, when iodoform is given in doses which the stomach will tolerate well, and given frequently and continuously for long periods, it is absorbed into the circulation ; and in the lungs, in whatever form it be, manifests its antiseptic (shall I say also antibacillary?) properties. The good effects of iodoform so administered, in phthisical conditions, is too unequivocal to be gainsaid, however they may be produced.

2. I see no reason to doubt that, when the vapor of the oil of eucalyptus (or other antiseptic vapor that can be tolerated equally well) is inhaled continuously and for long periods, it reaches the residual air in the lungs, and so externally, as it were, bathes the affected tissues or suppurating cavities that may be open to the ingress of the air.

3. That so, I apprehend, we may have antiseptic remedies, not antagonistic, brought up on two sides to the sites of inflammatory lung lesions, or the sites of

bacillary activity ; and these antiseptics, mutually co-operative, do affect for good both the inflammatory process and the bacillary activity, and bring about repair by the mode of organization after suppuration or fibroid substitution.

4. I think it is both correct and desirable to treat the pyrexia of acute phthisical processes, whether the temperature be high or moderate, by and for itself. I think no other special antipyretic than quinine should be used in phthisis ; and quinine serves other purposes as well when used as an antipyretic in moderate doses.—*British Medical Journal*, January 28, 1888.

SULPHATE OF SPARTEIN.

A report upon the clinical action of sulphate of spartein, from the clinic of Professor Nothnagel, in Vienna, and based upon eight cases of valvular disease of the heart, four of emphysema, two of pleuritis, and one of catarrhal icterus, appeared in a recent number of the *Medizinisch-Chirurgisches Centralblatt*. From the observations made in the cases mentioned the following conclusions are drawn:

1. Sulphate of spartein is an active cardiac stimulant in small doses. The contractions were more efficient, the pulse fuller, the arterial tension increased, and the frequency of the pulse usually diminished a few beats.

2. The action occurs in from three-quarters of an hour to one hour after administration, often continues longer than twenty-four hours, and can be increased by a repetition of the dose during this time. After a number of days of its employment a cessation of administration is necessary, as it then again acts more strongly. It may be employed for periods longer than a week without ill effects.

3. The disturbance in the rythm of the contractions of the heart will occur again only in a few cases. In the more severe cases of heart-lesions the smaller contractions become indeed more marked, but the

force of the stronger is not correspondingly increased.

4. The frequency of respiration is sometimes increased and sometimes diminished, after the administration of the remedy.

5. The diuretic effect often corresponds with the increased force of the contractions of the heart.

6. A secondary slight narcotic effect frequently occurs in the form of increased calm and slumber.

7. With the small doses of one to four milligrammes (1-60 to 1-15 grain), symptoms of intoxication, dizziness, headache, palpitation, and nausea, only seldom occurred, were slight, disappeared quickly, and did not re-appear if the dose was repeated. Spartein can properly displace the infusion of digitalis, but its action appears to increase too rapidly and not to remain at the maximum long enough for it to combat the severe disturbances of compensation, and one can not obtain, through repeated doses of it, such permanent increase in cardiac power as can be obtained by the use of digitalis.

It, however, possesses a great advantage in precision of dosage.

Its therapeutic indications are as follows:

1. In valvular lesions in the stage of disturbance of compensation, when the pulse is moderately full and strong.

2. In valvular lesions without marked disturbance of compensation, as a regulating and quieting remedy.

3. In insufficiency of the heart-muscle without valvular lesions.

4. In pericarditis.

5. As a diuretic it is inferior to other medicines.

6. As an adjuvant in connection with digitalis.

CIRCUMCISION IN THE ADULT.

Mr. CHARLES A. BALLANCE says, in a communication in *St. Thomas' Hospital Reports*, Vol. XVI, that the pain and discomfort that follow circumcision in the

adult are often very considerable. It has occurred to him to use in this operation the same dressing that it is customary to use after experimental lesions in animals, when every effort is required in order to obtain asepsis and the primary union of the wound; for such experiments will often fail unless the antiseptic or aseptic precautions are successful. The technique of the operation he proposes is as follows:

When the patient is etherized the outline of the posterior border of the glans is marked on the skin with an aniline pencil. The mucous membrane is next cut away, leaving only a free edge of about one-eighth of an inch in width. Any bleeding that occurs should be entirely arrested, and asepsis should be insured by frequent sponging with carbolic or sublimate solutions. Numerous horse-hair stitches are then inserted, so as to bring accurately together the fresh-cut edges of the skin and mucous membrane, and subsequently, after a further sponging and drying, a piece of gauze two layers in thickness, and wide enough to reach from the root of the penis nearly to the meatus, is wrapped *loosely* around the penis, and secured by several applications of the collodion brush, so that the air is kept in motion, and the patient should not be allowed to recover from the anaesthetic until the dressing is quite firm and hard.

In this manner the penis is protected by a kind of carapace, and the patient is relieved from the pain and tenderness attendant upon contact with the bedclothes or other objects. In fact, the organ can be handled as if no operation had been performed. It is hardly necessary to add that erections, which are under the usual conditions so painful, can not occur.

The points to note are: 1. The operation must be aseptic. 2. The gauze should be applied *loosely*. The dressing can be made to extend, at the will of the operator, as far forward as the meatus; but half an inch from the corona is ample. If the dressing has been put on rather tight, and some

swelling of the glans behind the dressing occur, the collodion dressing can be extended forwards as the urethea, or iced dilute subacetate of lead lotion may be used. For removing the dressing slit it up with a pair of blunt-pointed scissors. It is usually worn for about a week. As yet I have never found it necessary to apply it a second time.

ELECTRICAL TREATMENT OF SALPINGITIS.

At the meeting of the Société de Médecine, of Paris, on February 11, M. APOSTOLI read a paper on this subject, in which he drew the following conclusions :

1. The fever and inflammatory state are not an absolute indication in gynaecology to the methodical and appropriate application of the electric current.

2. Non-inflammatory suppurations of the uterus may be advantageously treated by the constant current, which, if it is favorable in congestive periods and inflammations of the first degree, appears to me, nevertheless, to be contra-indicated in cases of confirmed suppuration. I make an exception of the cases in which electric cauterization, in the tubular form, serves to create with the pus, near the vaginal wall, a more favorable and surer tissue.

3. The penetrating galvano-caustic, in the form of galvano-puncture, is a precise method that may serve a double purpose : (a) To absorb a phlegmasia at the beginning, and to arrest an inflammatory process in its evolution. (b) To permit easy evacuation of a fluid collection through the channel made by the puncture, provided this collection is in the vaginal cul-de-sac.

4. Every inflammatory exudation occurring in the vaginal cul-de-sac may be justifiably treated by the penetrating galvano-caustic (under restrictions to be mentioned).

5. This method may be applied with success to certain cases of salpingitis and hydro-salpingitis, and with so much the

more ease and harmlessness as the tumor is nearer the vaginal wall.

6. In every galvano-puncture the operator should rigidly observe the rules already laid down concerning the site of puncture, its depth, the size of the trocar, antiseptic precautions, the rest of the patient, etc.

7. Only two negative vaginal galvano-punctures, in a case of acute hydro-salpingitis, are sufficient to cause very rapidly a considerable anatomical regression and an absolutely symptomatic cure.—*Gazette de Gynécologie*, March 1, 1888.

EPIDEMIOLOGY OF THE SECOND QUARTER OF 1887.—The following figures come from the official report of the health-office in Berlin: During the second quarter of 1887, there died in German cities of more than 15,000 people each, 60,294 people, a mortality of 23.6 per 1,000; in those of Austria 45,546, a mortality of 19.8 per 1,000; and in English cities 10,586, a mortality of 19.8 per 1,000. Of persons under one year of age there died in German cities 30.2 per cent. of all deaths, and in English cities 23.3 per cent. In German cities 8,891 died of phthisis, in Austro-Hungarian cities, 6,579. In this quarter typhus carried off 140 in Moscow, 4 in Königsberg, and 1 in Vienna. Typhoid fever carried off in Germany 433 (44 each in Hamburg and Berlin), in Austro-Hungary 287 (14 in Vienna), in Moscow 110, in London 86, in New York 121, in Chicago 64, and in Cairo 184. Diphtheria killed in German cities 2,466 (310 in Berlin, 163 in Hamburg, 114 in Breslau, 63 each in Dresden and Leipzig), 557 in Austro-Hungarian cities (58 in Vienna), 328 in English cities (193 in London), 187 in Moscow, 880 in New York, and 307 in Chicago. Died of scarlatina in German cities 449 (36 each in Berlin and Cologne), Austro-Hungarian cities 360 (97 in Vienna), 596 in English cities (192 in London), 109 in Moscow, 165 in New York. Measles killed in Germany 1,263 (409 in Munich), in Austro-Hungary 667 (298 in Vienna), in

England 3,114 (1,227 in London), in New York 142, and in Chicago 166. Only 29 persons died in large cities of Asiatic cholera (5 in Bombay, and 24 in Madras.) Small-pox killed in Germany 18, in Vienna 23, in Moscow 20, in Lisbon 44, Genoa 36, East India 56 (52 in Bombay), Cairo 16, Alexandria 30, and New York 48. Acute diseases of the respiratory organs killed in German cities 7,555 (750 in Berlin, 325 in Hamburg, 263 in Munich, and 234 in Breslau), in Austria 3,591 (984 in Vienna). Diarrhoea and cholera-morbus killed in German cities 3,551 (1,331 in Berlin), 1,607 in Austro-Hungarian cities, and 576 in English cities.

PILOCARPINE IN BRIGHT'S DISEASE.—The Vienna correspondent of the *British Medical Journal* says that Drs. BENEZÜR and C. CSATÁRY of Buda-Pesth, give in a recent number of *Orvosi Hetilap* the following summary of a series of articles on the effect of pilocarpine chloride in Bright's disease:

1. The patients become accustomed to the pilocarpine, and even large doses, such as six centig., do not at a later period produce such disagreeable after-effects as doses of one centig. at the beginning of the treatment. The injections of pilocarpine should not be discontinued in consequence of symptoms that had been considered as being dangerous. 2. The effect of pilocarpine on the daily secretion of saliva, sweat, and urine, as well as on the daily oscillations of the amount of haemoglobin in the blood, is in most cases regulated by the stage of the disease and the quantity of liquid that had been taken. 3. The oedema disappeared the more rapidly the larger the dose of pilocarpine given, and the less the quantity of liquid that the patient had taken. 4. Pilocarpine considerably increases the density of the blood for from four to five hours. 5. The hydræmia in Bright's disease does not depend on the amount of oedema. 6. The quantity of haemoglobin in the blood diminishes; that is to say, the hydræmia

increases when the general condition of the patient becomes impaired during the progress of the disease. 7. When used according to the above-mentioned principles, pilocarpine will be found in most cases of Bright's disease, even when hot baths and diaphoretics prove useless, always to diminish dropsy to such an extent that the patient is more or less protected against dangerous uræmic suffocative attacks. In this way it may be possible to effect a relative cure; that is, in secondary granular contracted kidney.

SUBCUTANEOUS SEPARATION OF TRACHEA AND LARYNX.—NOLL, of Hanau, reported at the sixtieth Versammlung Deutscher Naturforscher und Aerzte, in September, 1887, the case of a workman who received a blow from a piece of machinery on the front part of his neck. The skin was not wounded, and only a little blood was coughed up. The neck soon became very much swollen, and attacks of suffocation came on. On performing tracheotomy Noll found that the trachea was separated from the larynx, and was very much retracted, and that the cricoid and thyroid cartilages were fractured. The trachea was drawn up and sutured to the larynx, and a cannula introduced. Later, this could not be removed because of cicatricial contraction. The usual methods of dilatation failed, and a laryngo-fissure was made, in which a Dupuis' cannula was worn for nine months. The trachea and larynx are now completely grown together, and the patient is in as good condition as before, except that his voice is somewhat hoarse—*Deutsche med. Wochenschrift*, No. 52, 1887.

SIMPLE PUNCTURE IN EMPYEMA.—WÖFLER, of Gratz, recently reported to the Society of Physicians, of Styria, a case of empyema cured by simple puncture. The empyema had developed spontaneously, and was probably due to tuberculosis. Puncture was made with a trocar between the sixth and seventh ribs, on the

left side, and the pus evacuated by siphon drainage. The lower end of the rubber tube communicated with a bottle filled with antiseptic fluid, and was left in till no more pus escaped. Healing took place very rapidly, and this method seemed to be preferable to extensive resection of ribs. Wölfler has recently treated three patients successfully by this method. They were told to carry the bottle, with the drainage apparatus, till no more pus escaped.

ANTISEPTIC POCKET CASE.—The necessary elements in antisepsis are soap, a brush, and an antiseptic, the latter capable of accurate dosage, and colored, that it may not be mistaken for something else. One finds soap in every house, but the other two elements must be carried. Dr. Egli-Sinclair recommends, and has used satisfactorily for months, a case containing a nail-brush and a bottle containing the following solution:

Hydrarg. chlor. corros.....	40.0
Ammon. chlorat.....	8.0
Nacht blau.....	0.8
Aqua distillatæ.....	200.0

The stopper of the bottle is hollow, and holds enough of the fluid to make, when added to one litre (about two pints) of water, a 0.1 per cent. sublimate solution, strongly colored blue, which even a layman can not fail to recognize. Such a case is especially commended to obstetricians and midwives.—*Correspondenz-Blatt für Schweizer Aerzte.*

INHALATION OF CARBONIC ACID GAS IN DYSPNEA.—Dr. EDWARD WEIL has used inhalations of carbonic acid gas to relieve dyspnoea, and with favorable results. He thinks that the good effect is due to the abolition of reflex sensibility of the pharynx and larynx. The patient inhales the gas for from two to five minutes once or twice a day, in quantities of from two to four litres. When the inhalations are made during dyspnoea this is cut short, and the

patient breathes easily and comfortably. When the gas is given between the attacks inspiration becomes more free, and the attacks are prevented, or diminished in frequency, intensity, and duration.—*La Semaine Médicale*, March 7, 1888.

BOOK-REVIEWS.

THE RULES OF ASEPTIC AND ANTISEPTIC SURGERY. A Practical Treatise for the Use of Students and the General Practitioner. By ARPÁD G. GERSTER, M. D. Pp. vi and 332. New York: D. Appleton & Co. 1888. Chicago: A. C. McClurg & Co.

“Prevention has become the watchword of modern practice, and it can be said that, by the successful employment of the preventive methods of the present day, surgery has become a conservative branch of the healing art.” This treatise is the result of an attempt on the part of the author to illustrate the truth of the quotation given, and of the following one, both from the preface. “It cannot now be successfully denied that the surgeon's acts determine the fate of a fresh wound, and that its infection and suppuration are due to his technical faults of omission and commission.” The truth of this last statement is just as unhesitatingly admitted by all qualified surgeons to-day as it would have been unhesitatingly denied by equally qualified men twenty years ago. Indeed this fact in regard to suppuration in fresh wounds is so fundamental that no one who doubts its truth ought to practice plastic surgery. The fact that many practitioners do their surgical work either in ignorance or disregard of this principle is ample excuse for the stress laid upon it in this connection.

The book is subdivided into five parts: Asepsis, Antisepsis, Tuberculosis, Gonorrhœa, and Syphilis. As this division of the general subject indicates, the discussion of the special subjects of surgery is both new and unique. The author particularly disclaims any attempt at completeness—“the inclusion of all of the disciplines of surgery”—but to illustrate the changes in wound treatment in practical surgery, and “to place before the profession a vivid and true picture of contemporaneous surgical methods.” As far as possible the principles discussed are illustrated by actual cases taken from the author's practice.

The illustrations, a special feature of the book, are from photographs of actual cases, and demonstrate the steps of the operations described, from the application of the aseptic protective bandages and dressings, applied before beginning, to the completed dressing at the close of the operation, when-

the patient is ready for removal. No illustrations could be more striking of the difference between the old and the new practice. They are prepared by the photo-engraving process and resemble actual photographs very strongly. This method of illustration of medical books is new, and is a welcome innovation. There are two hundred and forty-eight of the illustrations, and, with few exceptions, they are not pictures of instruments.

The author is to be congratulated, both upon the undertaking and upon the success with which he has accomplished it. Instead of containing a lot of material which all others upon the same subject contain, it is filled with matter which no other book of its kind contains. It is not exaggerated praise to say that it is the most important contribution to surgical literature which has appeared in this country in recent years.

The manner in which the publishers have done their work is beyond unfavorable criticism.

E. W.

THE PRACTICE OF MEDICINE AND SURGERY

APPLIED TO THE DISEASES AND ACCIDENTS INCIDENT TO WOMEN. By W. H. BYFORD, A. M., M. D., Professor of Gynaecology in Rush Medical College, and of Obstetrics in the Woman's Medical College, etc., and HENRY T. BYFORD, M. D., Surgeon to the Women's Hospital, of Chicago; Gynaecologist to St. Luke's Hospital; President of the Chicago Gynaecological Society; Member of the American Medical Association, of the Illinois State Medical Society, and of the Chicago Medical Society, etc. Fourth edition; revised; re-written and very much enlarged; with 306 illustrations. Philadelphia: P. Blakiston, Son & Co. 1888.

It is hardly necessary to say anything of this work, except that the additions and revisions bring it fully up to the date of publication. Dr. Byford is so well known, and his work has been so generally accepted as one of the very best upon the subjects of which it treats, that the simple announcement of a new edition might suffice. We can not, however, omit the opportunity to note the views of the authors upon the subject of oophorectomy. As to the results of the operation, or rather the nature of the change accomplished, it, of course, arrests ovulation, and, in a large majority of cases, uterine hemorrhage or menstruation. This produces menopause, but, say the authors, "we should not forget that menopause is not change of life."

"Senile menopause, one of the symptoms of the change of life, is the consequence of gradual changes in all the organs concerned. This change is a degeneration of the genital organs." The question of the influence of the ovaries upon the nutrition of other portions of the sexual apparatus is touched

upon, especially in its bearings upon uterine fibroids, as follows: "The removal of the ovaries in the presence of a large fibroid and hypertrophied uterus, simply takes away their governing agency before the process of degeneration has begun." A doubt is expressed as to the value of such a procedure in the case supposed. The conclusion of a discussion of the difference between the effects of a natural change of life and oophorectomy upon fibrous tumors of the uterus is in the following words: "I do not wish to be understood as opposing oophorectomy; they (the reflections), however, make me hesitate to give an unconditional adhesion to the practice, even when in our present knowledge it would seem indicated."

"For intolerable and incurable cases of oophoroneurosis" the authors, however, consider the operation as often most helpful. Even here a careful inquiry should be made as to the cause or causes of the condition, with a view to remedy the trouble by some other means. They say: "Then the question comes up, whether we ought to spay our patient or prescribe and enforce the proper amount and kind of primitive living necessary to revolutionize her nervous functions?" It will gratify a large number of the members of our profession to see upon the title page the name of Dr. Henry T. Byford. The careful reader, acquainted with his contributions to the literature of this specialty, will recognize his valuable assistance in the work of revision and rewriting.

RECTAL AND ANAL SURGERY; WITH A DESCRIPTION OF THE SECRET METHODS OF THE ITINERANTS. By EDMUND ANDREWS, M. D., LL. D., Professor of Clinical Surgery in the Chicago Medical College, Senior Surgeon to Mercy Hospital, and E. WYLLYS ANDREWS, A. M., M. D., Adjunct-Professor of Clinical Surgery in the Chicago Medical College, Surgeon to Mercy Hospital. With original illustrations. Chicago: W. T. Keener. 1888.

This little book, of 111 pages, has been written and published to answer two questions concerning the diseases of the anus and rectum: 1. What are the best methods of diagnosis and treatment of these affections known to the regular profession? 2. What are the secret methods of the itinerants, and what is their value?"

The work does not pretend to be an exhaustive treatise upon the etiology, pathology, etc., of these troubles, but it is a well-condensed statement of the established opinions and methods of the best authorities upon a subject which has been greatly neglected by the profession, and which has, therefore, in the language of the authors "given charlatans an opportunity to slip in and occupy it in pestiferous numbers." The exposure of the secret methods of the traveling "pile doctor" is an amusing bit of history.

NASAL POLYPUS, WITH NEURALGIA, HAY-FEVER AND ASTHMA, IN RELATION TO ETHMOIDITIS. By EDWARD WOAKES, M.D., London, Senior Aural Surgeon and Lecturer on Diseases of the Ear at the London Hospital; Surgeon to the London Throat Hospital. With illustrations. 8vo. Pp. 140. Philadelphia: P. Blakiston, Son & Co. Chicago: W. T. Keener. 1887.

This monograph upon ethmoiditis and its consequences, is based upon the extensive personal observations of the author, and bears evidence of careful study of the different stages and various forms of this affection, together with its anatomical and physiological consequences. The author's views are well matured and his deductions are clear. His contributions to our knowledge of the pathological conditions leading to polypoid growths are of special interest.

LESSONS IN GYNÆCOLOGY. By WILLIAM GOODELL, A. M., M. D., Professor of Clinical Gynæcology in the University of Pennsylvania, etc. Third edition; thoroughly revised and greatly enlarged; with 112 illustrations. Philadelphia: D. G. Brinton.

The second edition of Dr. Goodell's valuable work has been for some time out of print, and the profession will be glad to know that the author has found time to revise and present to the student the latest views of the leading authorities in this specialty, but more particularly will the busy practitioner be glad to have the matured judgment of Dr. Goodell himself upon the vexed problems that are just now claiming the attention of the profession.

Of oophorectomy, or "Battey's operation," he says: "In well-selected cases, this operation has been followed by wonderful results, but," he adds, "it has been greatly abused." He cites cases illustrating his views as to the indications for the operation, and discusses at some length the results of the removal of the ovaries upon the physical, psychical, and social conditions of the patient. Upon the whole, he concludes that the effect is about the same as that of the normal menopause.

The conclusion of the article is as follows:

"The operation of spaying is yet in its infancy, and time is needed to develop its resources. From being performed too frequently and without sound warrant, it is in danger of falling into disrepute. Yet, I can not but feel that in carefully selected cases it will prove the sole means of curing many mental and physical disorders of menstrual life, which have hitherto baffled our science, and are a standing opprobrium to our profession."

The final lesson is devoted to a consideration of the causes of uterine disorders.

DISEASES OF THE HEART AND CIRCULATION IN INFANCY AND ADOLESCENCE. By JOHN M. KEATING, M. D., Obstetrician to the Philadelphia Hospital, etc., etc., and WILLIAM A. EDWARDS, M. D., Instructor in Clinical Medicine and Physician to the Medical Dispensary in the University of Pennsylvania, etc., etc. Illustrated with photographs and wood engravings. Philadelphia: P. Blakiston, Son & Co. 1888. Chicago: W. T. Keener.

This work consists of articles published by the authors in the Archives of Pediatrics during the year 1887. In collecting and publishing them in book form they have rendered a valuable service to the profession. Works on diseases of the heart in general are often unsatisfactory in their treatment of the derangements that so often occur during the growing and developing period of life. The information and data here collected will prove especially useful to the general practitioner. The book is not large—212 pages—and yet contains the sum of what is known upon the subject of which it treats.

A SYNOPSIS OF THE PHYSIOLOGICAL ACTION OF MEDICINES. Prepared for the use of the Students of the Medical Department of the University of Pennsylvania, with the approval of the Professor of Materia Medica. By LOUIS STARR, M. D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania, and JAMES B. WALKER, M. D., Professor of Practice of Medicine in the Woman's Medical College, Philadelphia, assisted by W. M. POWELL, M. D., Professor to the Clinic for Diseases of Children in the Hospital of the University of Pennsylvania. Third edition, enlarged. Philadelphia: P. Blakiston, Son & Co. 1888.

The book contains outlines of the physiological action of thirty-four drugs, the most of them being in common use. The arrangement of the work is systematic. Its scope is limited, and the matter is given in a very condensed form.

The fact that the book has reached a third edition indicates that there are many who are appreciative of such favors.

CHEMICAL ANALYSIS OF HEALTHY AND DISEASED URINE, QUALITATIVE AND QUANTITATIVE. By T. C. VAN NÜYS, Professor of Chemistry, Indiana University. With thirty-nine wood-engravings. 8vo. Pp. 187. Philadelphia: P. Blakiston, Son & Co. Chicago: W. T. Keener.

This excellent book is quite a complete manual of chemical urinalysis. It is well adapted to the laboratory—better than to the needs of the busy physician—since it is confined almost entirely to the more precise methods, especially in the part devoted to quantitative estimations, omitting all mention of other simpler, more convenient, and approximately accurate tests in extensive use.

BOOKS RECEIVED.

Mortality and Vital Statistics, Part II, with Plates and Diagrams. Volume XII, of the Tenth Census of the United States.

Ledger of Monthly Balances and Index of Accounts. A companion to the Medical World Visiting List.

On the Wasting Diseases of Infants and Children. By Eustace Smith, M. D.

The Refraction of the Eye. A Manual for Students. By Gustave Hartridge, F. R. C. S.

Nasal Polypus, with Neuralgia, Hay-Fever, and Asthma, its relation to Ethmoiditis. By Edward Woakes, M. D., London.

A Synopsis of the Physiological Action of Medicines. By Louis Starr, M. D.

Chemical Analysis of Healthy and Diseased Urine. By T. C. Van Nuyts.

The Rules of Aseptic and Antiseptic Surgery. By Arpad G. Gerster, M. D.

Transactions of the College of Physicians of Philadelphia.

A Practical Treatise on Diseases of the Skin. By John V. Shoemaker, A. M. M. D.

Diseases of the Skin. A Manual for Practitioners and Students. By W. Allan Jamieson, M. D., F. R. C. P., Ed.

A Practical Treatise on Medical and Surgical Electricity. By Beard & Rockwell. Revised edition.

Diseases of the Heart and Circulation. By John M. Keating, M. D., and William A. Edwards, M. D.

A Manual of Physiology. A Text Book for Students. By George F. Yeo, M. D., F. R. C. S.

Obstetric Synopsis. By John S. Stewart, M. D.

Irregularities of the Teeth and their Treatment. By Eugene S. Talbot, M. D., D. D. S.

The Treatment of Hæmorrhoids by Injection of Carbolic Acid and other Substances. By Silas T. Young, M. D.

Questions and Answers on the Essentials of Physiology. By H. A. Hare, B. Sc., M. D.

MISCELLANEOUS.

CHICAGO'S NEW GARBAGE CREMATORY.—It has been started and it does its work to the satisfaction of the Health Department. Only one of the furnaces was started up for work at 9 o'clock yesterday morning, and the other three were started about the same time for the purpose of drying and getting them in shape for work. The one that was started proved ample to dispose of the garbage on hand until some twenty carts pulled up all at once. Then there was a

slight delay before all of them could be emptied.

It is situated on Grant avenue, in the western part of the city, in a stone-quarry, and the top is just on a level with the street. The garbage wagons drive on top of it and the loads are dumped into schutes that land them on what are at present temporary floorings. From there they are shoveled through doors into the furnace. They fall on a grating and over this the flames pass.

The furnaces are at the north and south ends of the building and the chimney is in the middle. The draft thus carries the flames over all the garbage dumped into the ovens and the heat consumes it. The ashes as they are formed drop through the grating into the ash-pans beneath. And so the garbage of the city will be destroyed in the future.

The one oven working did excellently well. Garbage of all kinds was dumped into it, and went into ashes in an incredibly short space of time. The other furnaces will be under way soon. The floors have not yet been constructed for them, and until that is done it will be impossible to put garbage into them. The cost of the furnace was \$10,000.

THE ANNUAL MEETING AND BANQUET OF THE ALUMNI ASSOCIATION OF THE INTERNES OF COOK COUNTY HOSPITAL.—The annual meeting of this association occurred March 28, 1888, at the hospital. By invitation, Professor Christian Fenger delivered an address on struma. Dr. Winslow, of Jacksonville, Illinois, was elected president, and Dr. C. E. Caldwell, of Chicago, vice-president, for the ensuing year. Dr. Harris, of Chicago, was re-elected secretary and treasurer.

PROFESSORS ERB, of Heidelberg, and LIEBERMEISTER, of Tübingen, are both named for the chair of the medical clinic of Leipzig, made vacant by the death of Professor Wagner.

COLLEGE OF PHYSICIANS AND SURGEONS.—The graduating exercises of the College of Physicians and Surgeons were held in the Grand Opera House.

The following is the list of graduates:

Wm. Orr. Anderson
Franklin M. Bailey
Hermon R. Bulson
H. Leslie Burrell
John A. L. Bradfield
George C. Brengle
S. W. Burson
Isaac W. Brown
A. W. Burrows
Milton F. Coe Ph. B.
Neil Cameron
Frank C. Cullen
William Wilson Coker
Levi B. Casey
John Howard Davies
Frank E. Duckworth
William S. Fowler
Clifford P. Fall
David W. Feltenstein
John F. Glover
Henry A. Holliday
B. Y. Harris
Thomas J. Haines

David P. Hueston
David T. Jones
William F. Malone
Fitch C. E. Mattison
Ernst J. Miller
Robert R. Michael
L. Frank Myers
George M. Nesbit
Oscar F. Pile
Henry F. W. Petersen
Charles Stirling
Walter B. Stewart
Otto W. Stair
Schuyler Shidler
James T. Stanton
Bruno von Schallern
J. Joseph Selbach
James G. Sinclair
William B. Towle
John James Wood
Daniel Baldwin Wylie
Howard Eugene White
Luther R. Williamson

MEDICINE IN SYRIA.—The Syrian Protestant College at Beirut, in its catalogue for 1886-87, reports 103 graduates in its medical and pharmaceutical departments since 1871.

TRAINING-SCHOOLS FOR ATTENDANTS IN ASYLUMS FOR THE INSANE.—In an address upon this subject, read before the Fourteenth National Conference of Charities and Correction, held in Omaha during the past year, Dr. Richard Dewey, superintendent of the asylum at Kankakee, advocated the giving of special facilities for the instruction of attendants in this important duty. Such a school was organized in the institution of which he is superintendent, and the first class has just graduated—thirty-two in number.

Professor H. A. Johnson, of this city, addressed the class, and impressed upon its members the importance of their calling, and dwelt upon the fact that nursing now has become a profession, and honorable as well as important and responsible, and that intelligent effort must take the place of mere sympathy manifested in unavailing and often harmful ways.

THE CHICAGO MEDICAL COLLEGE.—The commencement exercises of the Chicago Medical College were held in Central Music Hall. The following is the list of graduates:

Louis Becker
Edward A. Bemis
Everett J. Brown
Henry B. Carriel, B.S.
Henry A. Fink
William R. Fringer
Henry D. Gardner
Frank F. Gray, Ph.B.
Louis L. Gregory, A.M.
Winfield S. Hall, B.S.
Joseph L. Hancock
Fred J. Hodges, B.S.
Bayard Holmes, B.S.
Ole T. Hougen
Frederick R. Hunt
Charles G. Ives
Chas. W. Johnson, A.B.
Honorary

James F. Keeney, B.S.
Henry H. Mather, B.S.
Charles H. Mayo
Otto G. Miller
Charles W. More
James J. Morgan, Ph. B.
Edwin A. Morse
Edward C. Morton
William H. Parker
Frank C. Sarrasin
Willis D. Storer
Thomas B. Swartz, A.M.
Edwin P. Taylor
Henry A. Vennema
Charles B. Wagner
William L. Warriner
Robert U. Chapman

OXYGENATED WATER IN DIABETES.—A. LE BLOUD recommends, in *L'Union Médicale*, 53, 1887, in diabetes, the use of water saturated with oxygen. He thinks that the increased quantity of oxygen furnished to the system will burn up the sugar. Senator, however, has already shown that such a view is erroneous.

UNIQUE SURGICAL CASES.—At the recent meeting of German Scientists and Physicians in Wiesbaden, Dr. DICK mentioned the following cases in his surgical experience: 1. Evulsion of a tendon *in toto*, together with the 2d phalanx of the thumb. 2. A complicated fracture of the elbow, in which the biceps-tendon, with the vessels and nerves above the joint, were cut through by a sharp fragment of bone. 3. A longitudinal fracture of the femur running into the knee-joint. 4. A fracture of the styloid process. 5. A fracture of the 2d cervical vertebra, with recovery. 6. A hairy tumor of the cornea.

A TABLET erected by the Alumni Association of the Bellevue Hospital Medical College, in memory of the late Professor Austin Flint, M. D., LL. D., was unveiled at the Carnegie Laboratory, in New York, on Saturday evening, March 10.

THE NEW SURGEON-GENERAL OF THE NAVY.—The official term of Surgeon-General Gunnell of the navy having expired, the President has appointed Medical-Director John Mills Browne as his successor. This is an appointment that will give universal satisfaction, since all recognize the eminent qualification of Medical-Director Browne for the honorable position of the head of his corps.

RADICAL CURE OF HERNIA.—Of 97 patients with 121 hernias, SCHWALBE, of Magdeburg, has cured 66 per cent. by subcutaneous and subfascial injection of a mixture of alcohol and boiling water.

ANNOUNCEMENTS.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Preliminary programme of the Congress to be held in Washington, D. C., on the evenings of September 18, 19 and 20, 1888.

President: John S. Billings, M.D., U. S. A.

Vice-Presidents, ex-officio: President of the American Surgical Association, D. Hayes Agnew, M. D., Philadelphia, Pa. President of the American Association of Genito-Urinary Surgeons, Edward L. Keyes, M.D., New York City. President of the American Laryngological Association, Rufus P. Lincoln, M.D., New York City. President of the American Climatological Association, Alfred L. Loomis, M.D., New York City. President of the Association of American Physicians, William H. Draper, M.D., New York City. President of the American Otological Society, Jonathan S. Prout, M.D., Brooklyn, N. Y. President of the American Ophthalmological Society, William F. Norris, M.D., Philadelphia, Pa. President of the American Neurological Association, James J. Putnam, M.D., Boston, Mass. President of the American Dermatological Association, I. E. Atkinson, M. D., Baltimore, Md. President of the American Physiological Society, Henry P. Bow-

ditch, M.D., Boston, Mass. President of the American Orthopedic Association, Newton M. Shaffer, M.D., New York City.

Chairman of the Executive Committee, William Pepper, M.D., Philadelphia, Pa. Treasurer, D. B. St. John Roosa, M.D., New York City. Secretary, William H. Carmalt, M.D., New Haven, Conn.

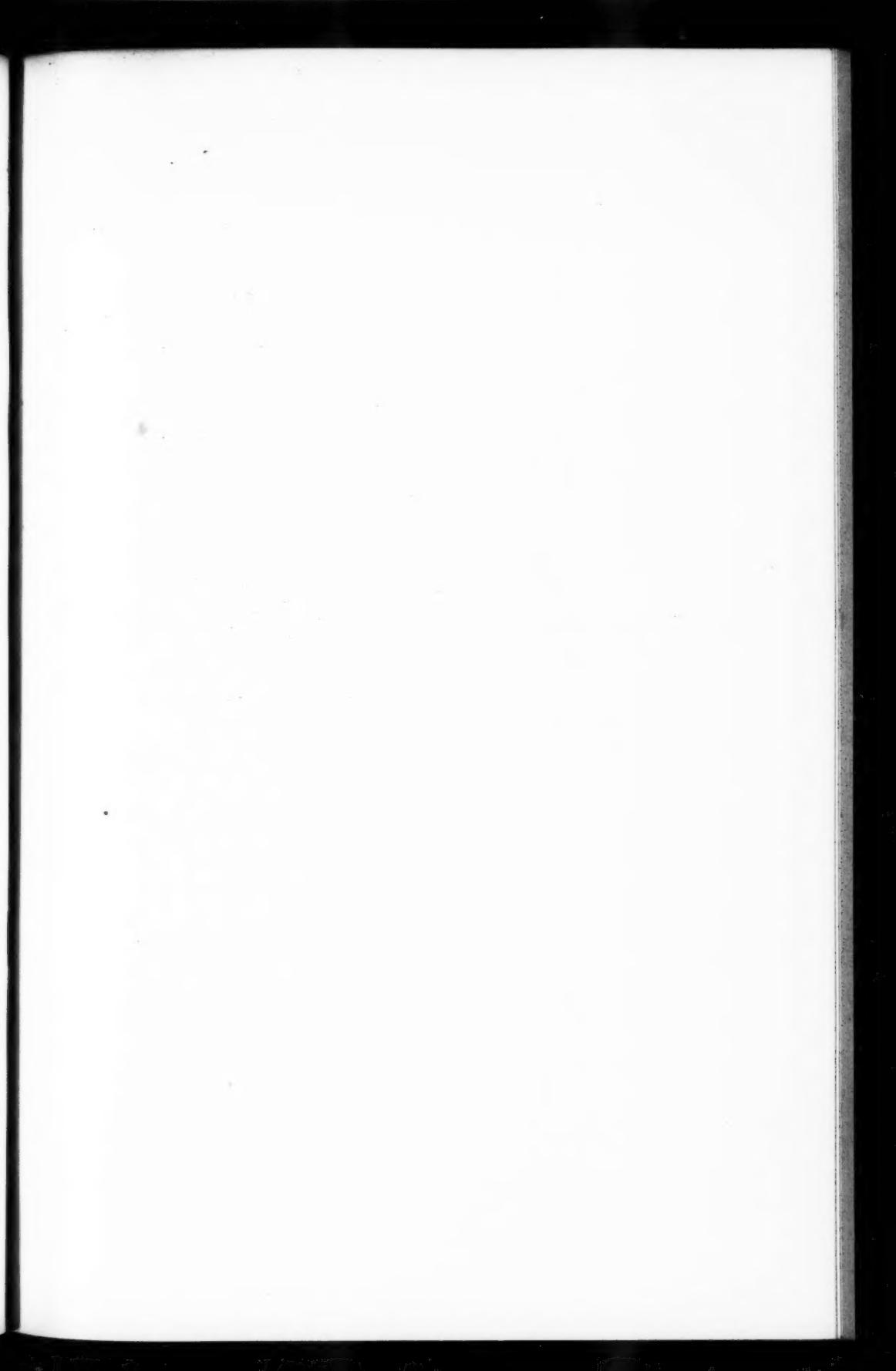
SUBJECTS FOR REPORT AND DISCUSSION.

—Tuesday evening, September 18, "Intestinal Obstruction in its Medical and Surgical Relations." Papers will be read by Dr. Reginald H. Fitz, of Boston, Professor of Pathological Anatomy in Harvard University, and Dr. Nicholas Senn, of Milwaukee, Professor of Surgery in the College of Physicians and Surgeons, in Chicago, Ill., followed by a discussion.

Wednesday evening, September, 19, "Cerebral Localization in its Practical Relations." Papers will be read by Dr. Charles K. Mills, of Philadelphia, Professor of Diseases of the Mind and Nervous System in the Philadelphia Polyclinic and College for Graduates in Medicine, and Dr. Roswell Park, Professor of Surgery in the Buffalo Medical College, followed by a discussion.

Thursday evening, September 20, Address by the President, John S. Billings, M.D., U. S. Army, to be followed by a general reception in the United States Army Museum building.

GARI PRIZE ON BLENNORRHAGIA.—The Royal Academy of Medicine and Surgery of Barcelona has announced as the subject of the Gari Prize (of \$300) for 1889, "The Pathogenesis of Blennorrhagia; clinical forms of the disease; cases of long duration and recurring cases; concomitant and consecutive affections; prophylactic and curative treatment." Demonstrations and reports of cases should accompany manuscript. These should be sent, written in Spanish, French, or Italian, to the Academy (*Banos Nuevos*, No. 9, Barcelona, Spain) before June 30, 1889.





Benjamin Rush

BENJAMIN RUSH, M. D.,

A GREAT PHYSICIAN, A NOBLE PATRIOT, A SIGNER OF THE DECLARATION
OF INDEPENDENCE.

THE MEDICAL JOURNAL AND EXAMINER.

DR. BENJAMIN RUSH.

A wise physician, patriot, Christian gentleman, and a cultured writer—such was Dr. Benjamin Rush.

The elder of two brothers, he was born in the township of Byberry, near Philadelphia, and having lost his father in early life, he owed to a devoted mother a generous education.

At the age of fourteen he entered Princeton College, and September, 1760, was graduated with the degree of Bachelor of Arts.

After his graduation he took up the study of medicine under the preceptorship of Dr. Redman, of Philadelphia.

After a pupilage of six years, he went, in 1766, to Edinburgh, where he attended lectures at the university, obtaining, at the end of two years, his degree as Doctor of Medicine. The following winter was spent in London, and the succeeding summer in Paris, and in the autumn of 1769 he returned to Philadelphia, and began the practice of his profession.

He pursued his practice with success, and in the year 1793 a terrible epidemic of yellow fever visited the city. The epidemic broke out during the first week of August, and raged with singular virulence until the end of October, and during that period the city was nearly depopulated. The inhabitants fled panic stricken. In the city alone, the disease counted about 4,000 victims.

Dr. Rush never wavered in his duty. At one time, when 6,000 people were down with the disease, only he and two other

physicians stood to their posts, the rest having, it is stated, either died or removed to places of safety.

For weeks, day and night, his house was filled and surrounded by multitudes imploring his assistance. In fact, he nearly paid for his labors with his own life, naturally succumbing at last to a strain that no human system could endure.

His treatment was "heroic." Indeed, Dr. Rush was no believer in what has been aptly described as "long range practice." But though his practice was successful, it aroused a controversy that degenerated into malicious and scurrilous personal abuse. But the world recognized his greatness. Honors and presents flowed in upon him from all countries, and among those gifts was a valuable one from the Emperor of Russia.

The history of Dr. Rush as a teacher of medicine is familiar; his appointments, as chronicled in the journal of the University of Pennsylvania, were as follows: 1769, Professor of Chemistry in the College of Philadelphia; 1789, Theory and Practice of Medicine in the same institution, succeeding Dr. Morgan; 1791, Institutes of Medicine and Clinical Science in the University of Pennsylvania, into which the College of Philadelphia had been merged; 1796, Practice of Physics; this in addition to the last-mentioned chairs.

He was, besides, during many years, one of the physicians of the Pennsylvania Hospital.

He was a thoughtful and polished writer on general subjects, and some of his ideas

THE MEDICAL JOURNAL AND EXAMINER.

on non-medical matters, especially that of general education, have since borne fruit.

In July, 1776, he was chosen a representative to the General Congress, and signed his name to the Declaration of Independence.

In 1777 he was appointed for the Middle Department, Physician-General of Military Hospitals in the Continental Army, and in 1780 he became a member of the delegation from Pennsylvania to the convention that adopted the Federal Constitution.

On the close of the war, he was appointed to the directorship of the Mint, which position he filled during fourteen years.

In private life, he was an active promoter of various social enterprises, being Vice-President of the Philadelphia Bible Society ; Vice-President of the American Philosophical Society, etc. He was also for a time President of the Philadelphia Medical Society. In 1786 he instituted the Philadelphia Dispensary, and was active in founding Dickinson College, at Carl-

isle, Pennsylvania, as well as an earnest advocate of a free-school system.

These facts serve to illustrate the breadth and liberality of his views, which were far in advance of his times.

He died of typhus fever, in the height of his intellectual vigor and fame, on the 19th of April, 1813, in his 68th year, honored, respected, and beloved. His loss was more deeply lamented throughout the country than that of any other man of his day excepting Washington and Franklin. He left many contributions to the literature of his profession, and though his medical writings have been superseded, his influence upon the methods of the profession remains unimpaired.

In his native city, the magnificent Rush Library, on South Broad street, stands to-day a monument to his fame and his generosity; and his name is still respected after a lapse of nearly four score years, as that of a hero, gentlemen, scholar, and Christian of the noblest type.